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EXCAVATING ENGINEER

FOUNDED 1905

Troup Brothers of Miami, Florida level off additional parking space at Florida's famed Hialeah race track with a ¾-yard dragline.

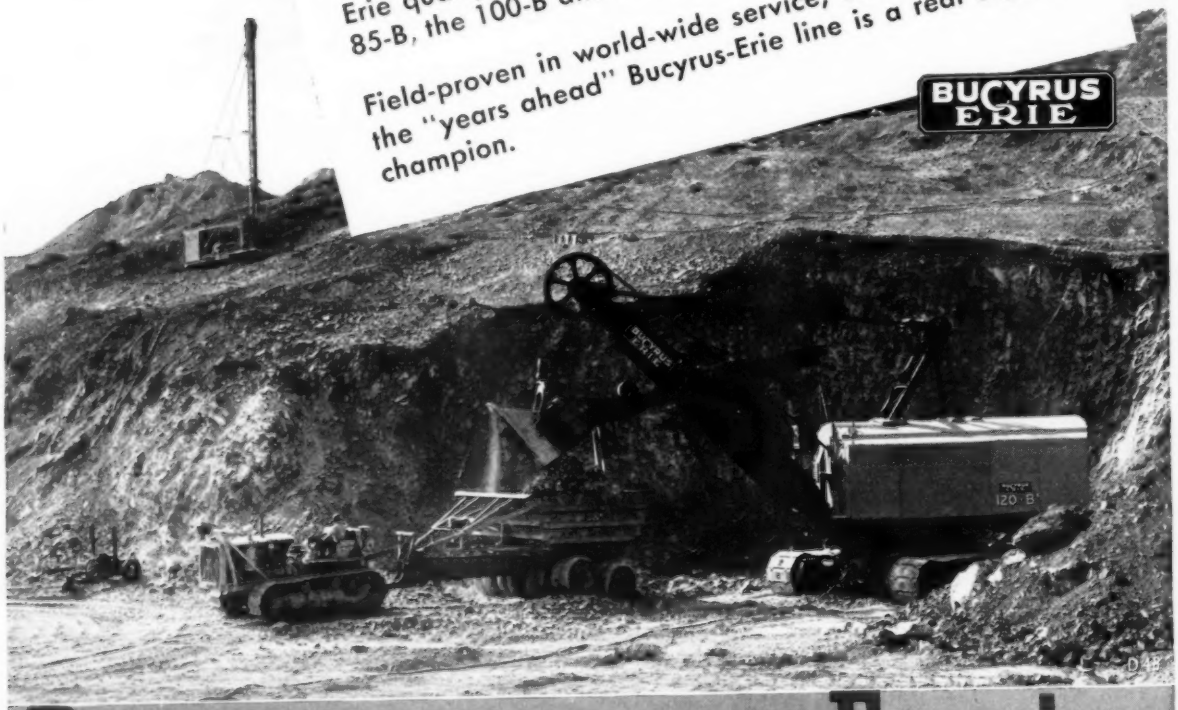
Vol. XXXXV February 1955 Number 2

GETTING OUT THE ROCK FOR PERMANENTE

AT Permanente Corporation's big California plant, Bucyrus-Erie equipment is keeping costs down and production up as in most modern quarries all over the world. Drilling is handled by a Bucyrus-Erie 29-T which puts down economical 9-inch holes. Rock is loaded out by a fast, modern 120-B shovel.

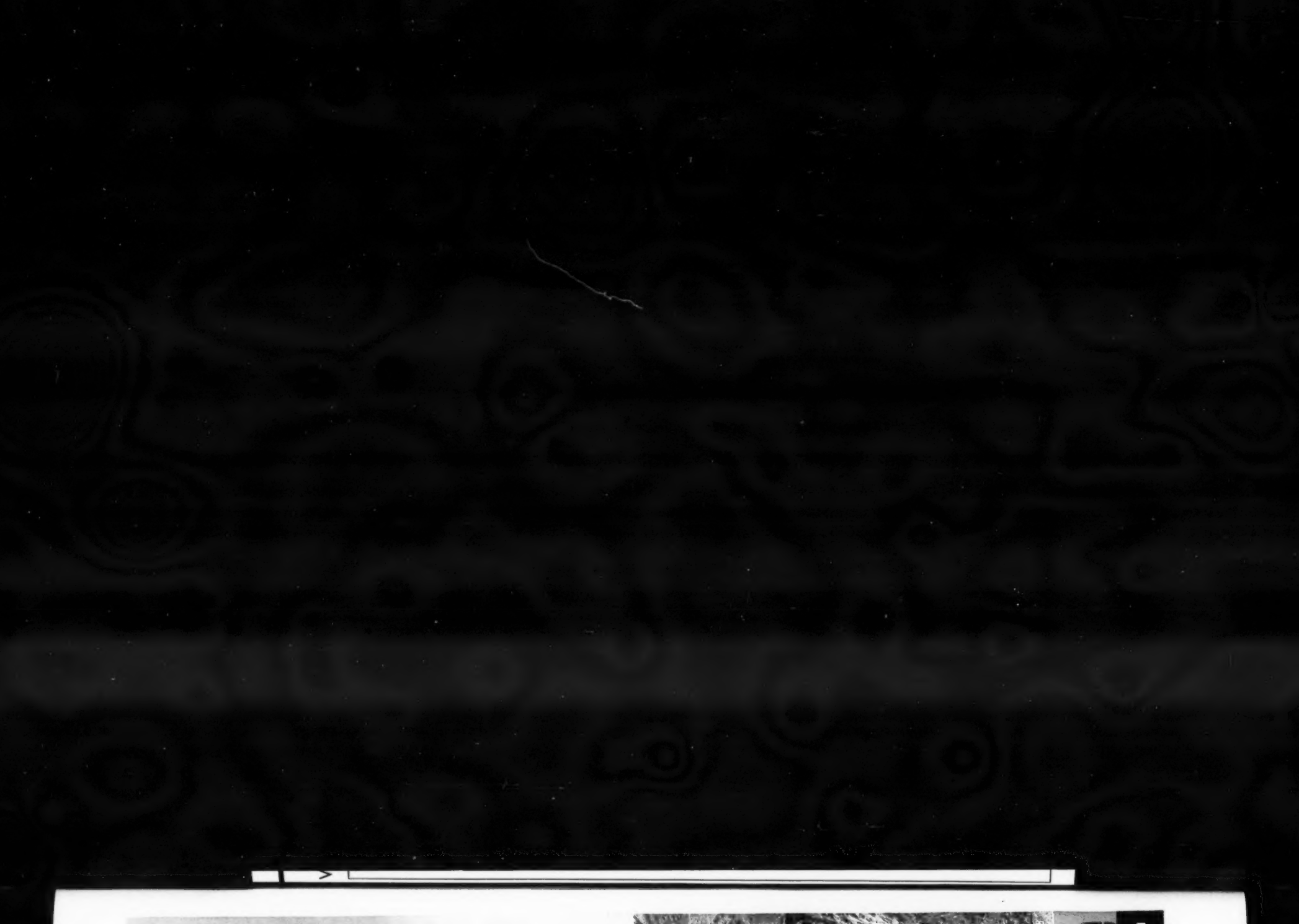
Sturdy all-steel Bucyrus-Erie drills with rubber shock absorbers deliver a snappy shattering blow that really eats into the rock. Sizes are available to put down hole to 12 inches in diameter. In addition to the world-famous 120-B, the line of modern heavy duty Bucyrus-Erie quarry and mining shovels includes the 54-B, the 85-B, the 100-B and the 170-B.

Field-proven in world-wide service, every machine in the "years ahead" Bucyrus-Erie line is a real digging champion.



Bucyrus-Erie

SOUTH MILWAUKEE, WISCONSIN



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EXCAVATING ENGINEER

FOUNDED 1905

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Published Monthly by THE EXCAVATING ENGINEER PUBLISHING COMPANY, South Milwaukee, Wisconsin, U.S.A.

F. O. WYSE *Manager* — ARNOLD ANDREWS *Assistant Manager*
D. B. REED, JR. *Editor* — M. J. BARGENQUEST *Associate Editor*
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CCA Member Controlled Circulation Audit

Regular subscription: 25 cents per copy, $2.50 a year; Canada, subject to publication policy, $3.50 per year. Special subscription: Upon application on card inserted in this number this publication will be sent frequently (not regularly) free of charge, to companies, executives and supervisors engaged actively in the industry of excavation.

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Big pay loads X fast cycle

= LOW-COST DIRT

Bucyrus·Eri

SOUTH MILWAUKEE, WISCONSIN

Here's a LOW-COST Road in the Making!

AMERICA needs good roads and *gets* them. Thanks to improved engineering, advanced construction methods, and INTERNATIONAL INDUSTRIAL POWER, many of these roads are being built at lower cost, with no sacrifice of quality in the finished highway. Working symbol of modern road building is husky crawler tractor power pushing its way through rocks, sand, and gravel, like the big TracTracTor above. It's the International TD-18 Diesel, the crawler that's making good on construction jobs all over the country.

Roads . . . streets . . . bridges . . . airports . . . wherever there is dirt to move, the TD-18 is cutting costs, saving time, and *coming back* for more punishment.

The three other International Diesel TracTracTors—the TD-6, TD-9, and TD-14—are cutting costs on construction jobs in their range. Whether the work calls for scooping, lifting, ripping, carrying, or dumping, you can depend on these four crawlers. They are extremely flexible. They handle easily in close quarters. They work at steady, time-saving speeds. They move generous yardage at every trip. *And they use low-cost Diesel fuel for real economy!*

Look into the performance of these four new International TracTracTors. Build your work program around these sound, reliable power partners. See the nearby International industrial power dealer or Company-owned branch for further information.

INTERNATIONAL HARVESTER COMPANY

180 North Michigan Avenue Chicago, Illinois

INTERNATIONAL Industrial Power

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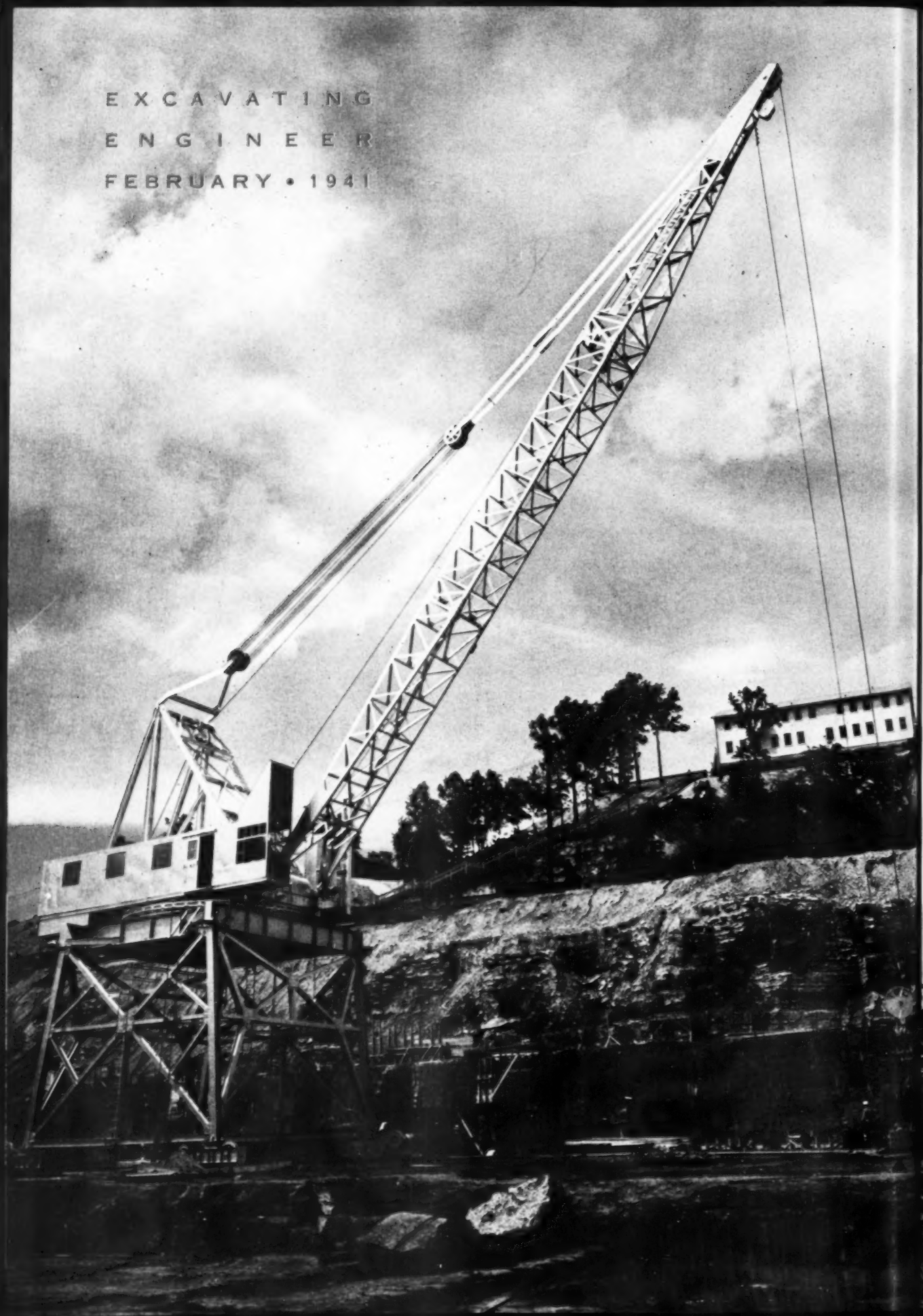


FULL SPEED AHEAD

at Kentucky Dam

TVA's Tennessee River barrier at Gilbertsville is the key unit of one of America's greatest dreams — the Tennessee Valley Project

BY W. BURR CULLOM

KENTUCKY DAM, under construction 22.5 miles above Paducah, Kentucky, on the Tennessee River, is the largest of the TVA projects. Due to the present national emergency, "full speed ahead" is the order of the day in all TVA construction.

One of the most important flood control and navigation projects to be erected on an inland river east of the Mississippi; Kentucky Dam, in mass and reservoir capacity, is only exceeded by a few dams, such as Boulder, Grand Coulee and Fort Peck in the West. Students of the project believe that its exceptional flood control, navigation, power, and recreational possibilities place it among the most important engineering projects in the country.

The Kentucky Dam may be considered as the "faucet" for the Tennessee River since, when completed, it will be possible to stop the flow of the river entirely for limited periods, or in effect to "turn the river off and on." Some idea of its effectiveness may be obtained when it is considered that its reservoir will provide 4,570,000 acre feet of flood control out of a total reservoir capacity of 6,100,000 acre feet. The shoreline will be 2,000 miles at the usual pool level 16 feet below the top of the dam gates.

The dam provides this large amount of flood control within one day's water travel of Cairo, Illinois at the juncture of the Ohio and Mississippi River and will reduce major flood stages by about two feet at that point.

Estimated Cost $105,000,000

Kentucky Dam will ultimately include five 32,000-kilowatt generating units of which four have been authorized initially. The dam and its reservoir area are estimated to cost $95,000,000 exclusive of power development and $105,000,000 with the four units. Exclusive of flood control, navigation, and power benefits to the Tennessee River system, this key structure will contribute to the control of Mississippi River floods.

From a national defense standpoint, the entire Tennessee River watershed is strategically located. It is about halfway between the Gulf and the Lakes and it is safely over the mountains from the Atlantic. With several fine airports that can quickly be converted to military use, navigation facilities and an abundance of cheap power, the Tennessee Valley is being recognized in the location of army camps, artillery ranges, powder plants and other defense industries, including one of the world's largest aluminum plants.

The Kentucky Dam is located at a point close to the lower end of a long, low trough which extends across the states of Kentucky and Tennessee. Flowing in a northerly direction, the Tennessee River meanders leisurely down

● Opposite Page: A fifty-ton American Revolver crane moves materials in Kentucky Dam's main navigation lock channel. Perched on the hill in the background is the construction office.

● Below: Main navigation lock excavation operations, showing the two Northwest shovels and Bucyrus-Monighan at work. In the center, a squad of wagon drills line-drill the bedrock.

this trough for a distance of 184 miles. It drops less than three-tenths of a foot per mile in its stride across the two states. There are many quiet pools in the great trough, with sandbars that have long obstructed navigation, especially during periods of low water. In fact navigation would be very difficult in this part of the river at certain seasons were it not for the timely storage and liberation of water at upstream dams.

Gilbertsville Site Found Best

Of all dam sites on the lower Tennessee River the one at Gilbertsville, Kentucky was found to be the most suitable. Thousands of exploratory holes, varying from 1⅛ to 4 inches in diameter, were bored with core drills. Some of the bores were 600 feet deep, which at this point, is 300 feet below sea level. All of the holes were bored 30 feet to 40 feet into rock and a large number reached 100 feet. The cores were studied for textural conditions of the substrata. This study revealed satisfactory foundation conditions. In this exploratory work, as was the case with other TVA dams, a number of 36-inch and 48-inch holes were bored. Their large size permitted geologists to descend, examine minutely at first-hand and photograph any part of the surface in the holes.

Total footage bored in exploratory work reached 100,000 feet or an equivalent of 19 miles. In order to disclose vertical seams and cavities that might be missed in vertical drilling, a large number of diagonal holes were put down.

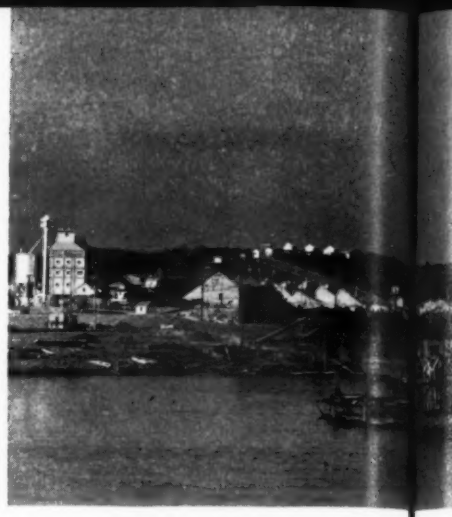
Kentucky Dam, composed of a gravity concrete section flanked by earthen embankments, will be 8,650 feet long, and its maximum height from the foundation to the top of the deck will be 160 feet.

The dam's navigation lock will be 600 feet long and 110 feet wide, which size will make it one of the largest, if not the largest, single lift locks in the country. It will have a maximum lift of 73 feet.

A bridge of the Illinois Central railroad crosses the Tennessee River a few yards below the axis of the dam. The piers of the railroad bridge do not rest on bedrock and since there will be, during construction operations, a concentrated flow of water around cofferdams and other river obstructions, it was necessary to protect the piers' foundations from scouring. This was done by driving sheet steel piling down to bedrock so as to form a cell that completely surrounds each pier. The cells were then filled with sand and gravel and topped with concrete. When the dam is completed, the railroad tracks will be moved to the top of the dam and the present bridge dismantled.

Depth of overburden at the dam site ranges from grade to 120 feet. It consists of considerable quantities of sand, gravel and clay.

One of the first steps taken was excavating the navigation lock and approach channel. The alluvial nature of the overburden made it possible to employ unusually efficient methods of removal. Preliminary excavating down to water level was carried on with scrapers, 10-yard pans, elevating graders, shovels and draglines. Occasionally, boulders of large size were found. These were broken down to handling size with air hammers and loaded by power shovels to a fleet of 10-yard Euclid, Hug, White and Sterling trucks. A traffic system was worked out that made it possible for continuous operation of the digging equipment.



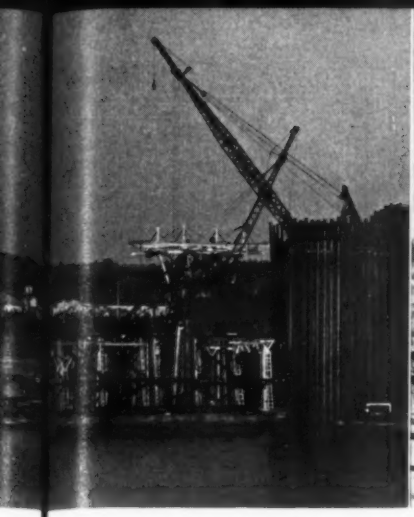
● Two of Kentucky Dam's three cofferdams are constructed of circular cells of steel sheet piling as shown here. At the left are the aggregate and concrete mixing plants.

Walking Dragline Excavates Boat Channel

To handle the major excavating operations, a Bucyrus-Monighan 5-yard diesel walking dragline was brought on a barge to the Kentucky site from upstream operations where it had served in the construction of other TVA dams.

During a part of the operations,

● The approach channel to the upstream end of the navigation lock is being cut through by this Morris Machine Works electrically powered dredge.

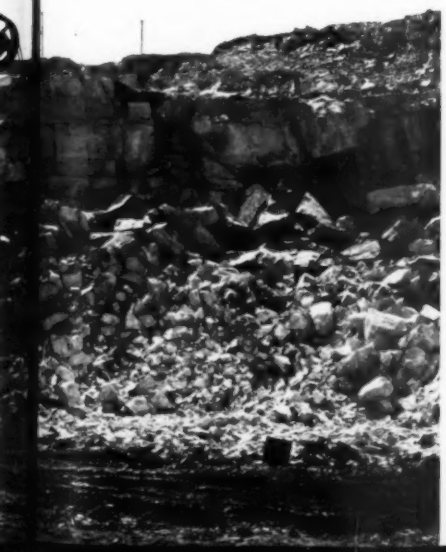


● Loading to a train of side-dump Koppel cars, this Bucyrus-Monighan 5-yard walking dragline excavates the upstream end of the navigation lock.

the Monighan dragline served 30 side-dump 20-yard Koppel cars. Most of the time the trams were on levels from 20 to 50 feet above the pit floor. This dragline easily kept six 10-yard trucks moving on short hauls during a large part of the channel digging operations. At the time of the writer's visit the maneuverability and versatility of this outfit were being proved in boat channel excavation operations. The walking dragline was busy cleaning out a cut about 45 feet deep and 100 feet in diameter, and was operating near the railroad bridge from which one could see it swinging with rhythmic efficiency from a difficult position in the channel cut.

The overburden and rock being taken from the lock area will amount to about two and a half million cubic yards. When bedrock was reached in the lock excavation, wagon drills were used in line drilling.

● Coarse aggregate for Kentucky Dam is loaded out of a limestone quarry by a Bucyrus-Erie 2½-yard electric shovel. Material is hauled 7 miles to the crusher at the dam site.



An interesting method was followed in excavating the upstream approach to the lock. It was necessary to cut an oblique channel through an island and carry the channel through part of an old slough to the lock. For this purpose an electrically powered dredge (Morris Machine Works) was used. A powerful stream was used in cutting the bank, and the mud and water were pumped through a 16-inch pipeline to a spoilbank below the dam. The discharge was at the rate of from 100 to 300 cubic yards per hour, through a pipeline floated on pontoons to the island. That part of the slough which will be a part of the future boat channel is now being used to barge aggregates, cement and other materials to the work area.

The cofferdom is in two sections at the Kentucky Dam, the first of which has been completed. The first section encloses about 40 acres, where nine of the dam's 24 spillways and the foundations for the future powerhouse will be constructed. The cofferdam is one of the largest ever constructed.

The cofferdam consists of interlocking cells formed by steel sheet piling and filled with sand and gravel. The cells range from 50 to 100 feet in diameter and average about 100 feet in height. In driving the piling to bedrock two lengths are required to reach the full height. Alternate 75-foot and 85-foot sheets, with interlocking edges, are driven down, leaving the tops above the normal water level. Shorter lengths, from 15 feet to 25 feet in length, are laced in above to complete the seal to the full height of 100 feet.

Owing to the height of the cofferdam and the nature of the river bed, an unusual design was necessary. A circular cell scheme was used. These circular cells are 50 to 100 feet in diameter. The circular cells are reinforced at all times by a berm placed against the inner face of the cofferdam. A cloverleaf design was used in the cross wall to permit removal of the supporting berm during low-water periods.

Sheet piling is being brought to the dam site by barge and is being set in place by cranes operating on a gantry and trestle. The driving is done by two jigs, each of which is equipped with four hammers. These jigs were specially designed and erected by TVA. On each of them the hammers are suspended from trolleys. The jig, which is set up inside the cell formed by the piling, can drive any pile in the cell. Each hammer covers a quadrant.

Work at the dam is on a 24-hour, 5-day week basis.

Concreting Operations

A Koehring concrete mixing plant has been erected on the high, eastern bank of the river, a short distance upstream from the construction area. Nearby is the slough on which barges bring materials. A conveyor belt system delivers the aggregates to a screening plant and storage. While the

(Continued on page 127)

FIFTEEN MILES west of Maricopa, California, a small filling station keeps the coyotes company in a wild, magnificent land of mountains and desert. The weatherbeaten old desert rat who tends the station is kind.

"Yup, son," he explained, "they've been haulin' gyp past the station here fer quite a spell. Tell yuh, yuh take that road there and foller her down about 20 miles to a big red mountain. Big pile uh red lookin' rocks there. Sign on the road there says 'Waddell Canyon.' Turn left, and she's up the road purty near three miles. Cain't miss it."

And so it was. Lange Brothers of Tehachapi, California, are working a recently opened natural gypsum deposit in the mountainous country west of Maricopa under a contract with the Monolith Portland Cement Company of Tehachapi. After 15 years of experience in the gypsum mining business, the brothers believe cement comes harder than most people believe; certainly more so than would be the case if all you had to do to get a supply was to telephone the building supply dealer. But they have succeeded, at that, in ironing out the bugs and whipping most of the practical difficulties. Like the problem of removing sticky clay from the gypsum in a country where even the drinking water has to be hauled in.

Volumes have been written about the chemical properties of cement, so it is impossible to duplicate this highly complex chemistry explanation in a paragraph here. Suffice it to say that one of the main ingredients is natural gypsum. This is a lime-sulphur-gypsum formation which appears in generous deposits in various places in the United States. It is found from Kentucky to California.

The towering mountain ranges west of Maricopa contain such a deposit. One huge mountain is almost all pure gypsum. It lies within the limits of government land controlled by the National Park Service and leases have been given to the Blue Diamond Corporation of Los Angeles and the Monolith Portland Cement Company of Tehachapi. The Monolith Company started ore removal from the Quatal Canyon deposit in July, 1940, under a contract with Lange Brothers.

● The Lange Brothers' Bucyrus-Erie ⅝-yard shovel loads gypsum to double-spotted Ford trucks for transportation to the nearby crushing plant.

A 200-Year Supply of Ore

This deposit is the largest one found in California up to the present time. It lies in a vein from 40 to 45 feet thick over an area of several square miles. The ore

Effective Methods
IN A "GYP" QUARRY

Coordination of methods and equipment enable the Lange Brothers to mine gypsum at a profit in Maricopa County, California

By FLOYD SUTER BIXBY

is free from silicas. This huge chunk of gypsum presents a mining setup in which time is the least deciding factor. Geologists have estimated that there is enough ore in this one deposit to last for 200 years. And Lange Brothers have estimated that the first 100 are the hardest.

Equipment was moved in to the job in July. A crushing and screening plant was set up while other machinery opened up some job haul roads and started to drill and blast the gypsum. The work site, here in this desert and mountain fastness, is a sight to dismay all but the strongest of hard rock men. It is no wonder that E. C. Lange, one of the brothers of the firm and superintendent of the quarry, looked first at those towering white mountain walls and then at his brother and said, "Well, Al, it's a long way to a repair shop from here. If our machinery breaks down it means days of delay."

Lying on an almost vertical plane the white gypsum lay exposed to the elements. Twenty-ton boulders lay scattered over the mountainside. Farther in, the gypsum lay in a great consolidated fractured mass. The Lange Brothers brought in a new Allis-Chalmers HD10 full diesel bulldozer, powered with a General Motors diesel motor and equipped

(Continued on page 128)

● **Top: General view of the "gyp" crushing and screening plant. Rough material dumped by the truck at the top comes off the bottom conveyor belt ready for the cement manufacturing plant. Bottom: An Allis-Chalmers mounted Hough tractor shovel loads finished gypsum from the quarry stockpile to a truck bound for market.**

IOWA HILL M

"Dynamite Hill" locally-famed obstruction on southern Iowa's Route 3 was just another cut for McGuire Brothers on their 4.54-mile state highway grading contract

LATE LAST SEPTEMBER, on a hill in southern Iowa, stood Gus Pryor, 87 years young and looking for his dynamite. Forty years ago he had planted it there, sixty pounds of it, twenty-two feet down. With it he had hoped to blow off the top of this hill so's he wouldn't have to go up and over it any more on his way to town. Took too much time, and none too easy on the horses either.

With considerable labor, he laid the charge; with bated breath he shot it. There was a slight grunt from the hill, but that was all. Nothing happened. Like Mohammed's mountain, the hill stayed put, as unmoved by dynamite as by faith. Gus was awed. He hadn't realized the hill was so well made.

While Gus, thereafter, left the hill entirely to its own devices, he was never able to get his dynamite completely out of mind. Not in forty years did he cease wondering. True, it had produced a sink hole right smack in the middle of a nearby road; and every spring, after the thaws, the county had to come out and fill it up. Yet, for Gus, that wasn't enough. The dynamite must have done more. Maybe only part of went off? Maybe there's a big hole down there some place? The danged hill couldn't be as stout as all that!

Scrapers Tackle "Dynamite Hill"

Now, after forty years of such bemusing, Gus was going to find out. A new road was being put through, and half of the hill was being cut away . . . Gus's hill, now known as "Dynamite Hill," the community's tribute to Gus's gumption.

Every day, as the hill went down, Gus came to the job. Expectantly, he waited for something to happen. But again, nothing did. No hole appeared. No scraper was blown to kingdom come. He had to admit, finally, the hill had him licked. It had, after all, safely withstood the blast of that long-ago charge. Sixty pounds, and only a sink hole.

But the hill didn't lick McGuire Brothers, contractors of Algona, Iowa, who merely took it in stride, as part of a state highway grading contract on Iowa State Route 3. The contract was for 4.54 miles beginning at Leon and stretching on west past Decatur City. The job, involving 253,000 cubic yards, was started on September 19, 1940 and finished in 38 days. Bid price for the excavation work was 8.5 cents per yard within 1,000 foot haul, with an extra bonus for overhaul.

McGuire's crews worked round-the-clock, three eight-hour shifts, six days of the week, with rest for all hands on Sundays. Light at night was furnished by three double flood lights mounted on rubber-tired trailer trucks carrying Kohler electric generators and telescopic masts for the reflectors. Equipment on the job included two Bucyrus-Erie 4-wheel scrapers, three Koehring Wheelers, a Killifer ripper, a Caterpillar No. 12 motor patrol, and two John Deere farm tractors adapted with weighted concrete wheels for rolling.

The two Bucyrus-Erie scrapers were of different sizes. One had a struck measure capacity of 13½ yards, the other of 10. To haul the 13½-yard scraper, McGuire Brothers used an International TD-18 TracTracTor. For additional power, while loading, they pushed it with another International TD-18 mounted Bucyrus-Erie bullgrader equipped with a wood-backed pusher plate mounted on the blade.

Pusher Tractor Used Successfully

Use of a pusher in this territory had never been successful before because scrapers usually could not be loaded full. The prevailing material is a heavy yellow clay which, because of its weight and sticky texture, packs so hard in the back of the bowl, ejection becomes extremely difficult. Hence, contractors have to haul small loads in oversized equipment. The dirt, for this reason, generally carries a five cent premium over other parts of the state.

But the modern scraper equipment employed by McGuire Brothers worked smoothly and dumped heaping loads cleanly. This was largely due to the fact that, in loading, the dirt "boiled in" and broke up nicely in the bowl which dumped the loose material easily by the simple force of gravity.

The 10-yard Bucyrus-Erie scraper was powered by a late model Caterpillar D7 tractor. The three Koehring Wheelers were rated at 10 cubic yards struck measure and had GMC diesel motors. A fourth tractor on the job was an Allis-Chalmers HD14. This tractor was equipped with a stationary pusher attachment and was used for pushing the Koehring Wheelers. The Killifer ripper, hitched on behind the HD14, was

● McGuire Brothers' Bucyrus-Erie scrapers work in tandem as they dump fill in a low spot. The 10-yard lead scraper is pulled by a Caterpillar D7 and the following 13½-yard machine is powered by an International TD-18.

VERS

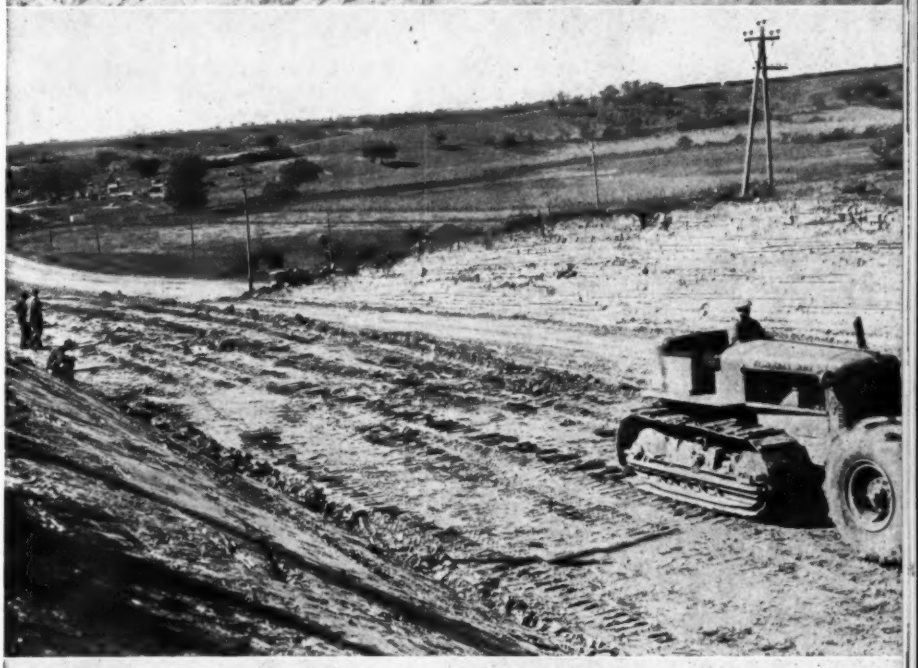
used for ripping ahead of the wheelers.

Division of work between the Koehring Wheelers and the Bucyrus-Erie scrapers was economically planned. The former were used on the long hauls, where hauling speed was essential. The scrapers were used on hauls up to 1,200 feet and, according to John T. McGuire, they loaded full in from fifty to seventy seconds, and dumped the heavy sticky clay without difficulty. They also spread their loads in layers of about eight inches loose dirt and exhibited remarkable balance and stability in the way the rear wheels followed the spread which was pretty chunky and rough. After dumping the loads, the scrapers were used, empty, to break up the chunks and work the material down for easier compaction with the John Deere farm tractors. This was done by leaving the bowl in raised position, after the dump, lowering the cutting edge to the level of the spread, and passing over the dirt in high gear on the return trip to the cut. The contractors also used the larger scraper for trimming up the backslopes. It was quite a sight to watch one of these big machines moving along on the side of a steep 2 to 1 slope.

New Creek Channel Excavated

The maneuverability of the McGuire scrapers was put to good use on this job. The operators were able to jack-knife dump up close to the culverts and heel in close to their wingwalls. At one

(Continued on page 127)



● Top: A 2 to 1 heavy clay slope is trimmed by the sure-footed International-Bucyrus-Erie combination. Center: A part of the "Dynamite Hill" cut; at right an Allis-Chalmers HD14 performing its "pusher" duties. Bottom: One of three Koehring Wheelers used on the contract takes aboard a load of heavy clay.

It takes an unexpected cold wave to make John Q. Public appreciate the excavating activities of such coal producing companies as the Maumee Collieries of Indiana

WHEN MR. JONES asks his coal man whyinhell his coal hasn't been delivered he can only expect the blame to be placed on a million other Mr. Joneses who were also caught with their bins down after a widespread blizzard swept over the complete northern section of the country. Mr. Jones expected old man winter to sneak in shortly after a non-partisan Thanksgiving but like a brother-in-law popping in on empty pantries cold weather times its arrival just prior to bin filling ceremonies.

People still vote coal as their leading source of heat and comfort and its use is increasing year after year, stimulating not only strip mine activity but likewise industries supplying implements used in the production of bituminous fuel.

Coal producers can't afford to speculate on a large scale but it cannot be said that they have not applied their boy-scout principle concerning preparedness because visits to several large mines have revealed high capacity production schedules to meet the belated necessities of the Messrs. Jones.

Anything with sideboards that can move on rail or road is being regimented into the huge army of coal hauling vehicles to transport the seasonally precious black gold to all parts of the nation.

One of the largest coal producing organizations in the midwest area, which is rallying to the urgent demands of John Q. Public is the Maumee Collieries Company with five huge mines in Indiana. Their Mine No. 23, located near Linton typifies the efficiency needed under big production pressure, and yet, they have to go one step farther than general to unearth a No. 4 seam of bituminous lying under 50 feet or more of slate, sandstone, shale and surface dirt, which covers the 3 foot vein of high grade coal.

Purchase Walking Dragline

The Linton Mine covers an area of three square miles and has been in operation for three and one half years. Increasing market demand for this coal, coupled with deepening overburden, both indicated the

● Below: Spoil piles lying above a 3-foot vein of high grade coal at the Linton Mine are rehandled by this Bucyrus-Monighan 15-W which swings a 13-yard Red Arch bucket from its 250-foot boom.

A WALKER TREADS

ON LINTON SUPREME

necessity of providing additional stripping equipment for uncovering the remaining coal acreage. Accordingly The Maumee Collieries Company determined to supplement their original stripping equipment, and to do so purchased and installed a Bucyrus-Monighan 15-W.

This dragline, with its characteristic walking device, squats comfortably like a contented Sioux with an aged peace pipe. Most noteworthy of the machine's features is the so-called mast-type boom suspension which stands between the A-frame and the boom. It reminds one of a bridge on a bull fiddle but this similarity has a plausible purpose. The "bridge" shortens the cable stress and furthermore allows a longer boom at a lower angle. The boom on this Bucyrus-Monighan is 250 feet in length and carries a 13-yard Red Arch bucket.

No yardage figures were available on the 15-W inasmuch as the machine had been on the job for only a few days at the time of the writer's visit. The type of digging too, offers no potential record busting although the work of the Bucyrus - Monighan, a 23 - yard Marion 5480 and a 3½-yard Marion 480 loader, is so well coordinated that 2,000 tons of coal are delivered to the tipple in each of three seven hour shifts. The average haul of one mile is covered by one Dart and three Autocar bottomdump trailer trucks and one International dump truck. A large tipple, designed and constructed by Maumee Collieries in 1939, cleans, screens and sorts 13 varied grades of coal.

● **Above: After the spoil piles are removed, this 23-yard Marion shovel strips the remaining overburden which averages 50 feet in depth. Note coal loading shovel in background.**

Under present conditions and with the equipment now in use, this operation and supply of No. 4 coal in this area, is expected to last six years, after which the equipment will be moved to other nearby tracts, where the coal will be hauled to the same preparation plant.

Bulldozers Assist Strippers

The rock ahead of the Marion stripper is pretty stiff and requires blasting. Holes of 50 foot lengths are drilled horizontally and filled with 120 to 125 pounds

(Continued on page 127)

EXCAVATING ENGINEER

FOUNDED 1925

A Monthly Publication

Devoted to the Excavating Industry

The Excavating Engineer Publishing Co.
South Milwaukee, Wisconsin

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Prepare Against Sabotage

Present defense plans have doubled the importance of many jobs being performed by large or small contractors all over the country. Many projects, such as dams, highways, canals, and manufacturing plants are of great military importance and it is the contractor's duty to his country, as well as to himself, to protect his job from the sneaking handiwork of the saboteur.

The importance of early preparation against sabotage activity was recently recognized by Guy W. Sackett, vice-president of Mason & Hanger Company, Inc., nationally-known contractors. Mr. Sackett's signed statement to the company's employees reads as follows:

"The outbreak shortly of a series of 'sabotage incidents' like 'the recent Hercules powder explosion in New Jersey, unless the Government takes active steps at once, has been predicted by Representative Dies (D-Tex.) who has said:

'Foreign Governments have placed agents and saboteurs in every key industry and unless the government acts within 30 days I predict a series of actual sabotage that will cripple the whole national defense program.'

"Dies said his committee had collected a vast amount of 'evidence of improper activities' on the part of German, Italian and Russian consuls and agents in the United States, much of which has been referred to the State Department.

"Dies has also stated:

'I don't believe any one in the Government realizes how serious the threat is. The already-placed saboteurs await only the proper moment to strike and their efforts will impede our whole defense program.'

"In my opinion every word of this report is true and it is up to Mason & Hanger Company's employees to do all in their power to protect the Radford Powder Ordnance Works, which we are constructing for the Hercules Powder Company.

"It is absolutely prohibitive for any of our employees to give out any information whatsoever, orally or written in reference to this work, and absolutely no photographs are to be taken by any of our employees, and all blueprint material, or any data which might fall into the hands of anyone might cause a serious injury to our Government.

"We all know the vital importance of the work which we are doing, and Mason & Hanger Company expects every employee to exert all of their efforts and as much of their time, in order to complete the work at the earliest possible date, and all I ask is that they give us the same cooperation which they have always given us on other work and everyone will be satisfied. I know without asking that this will be done."

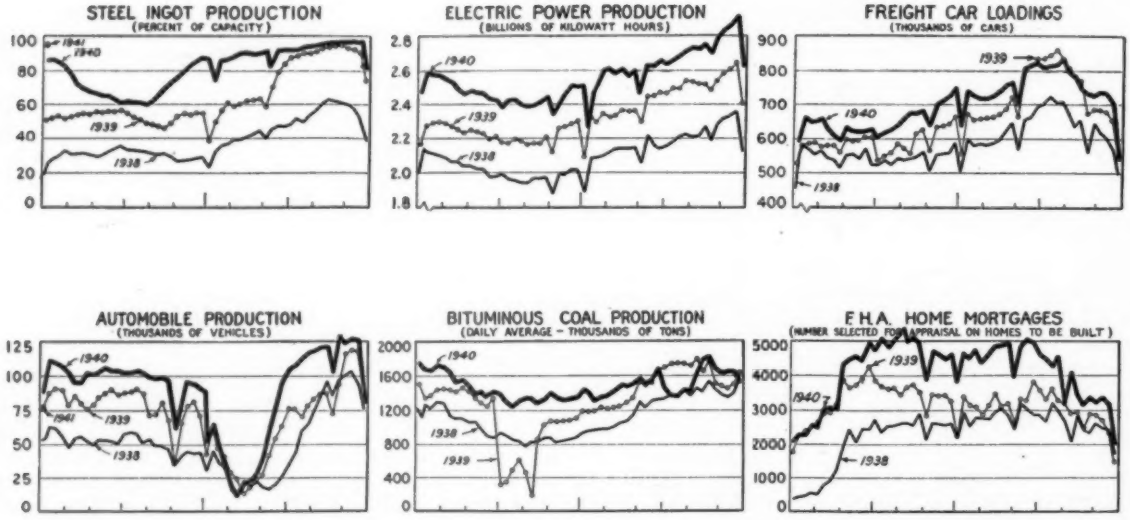
The above is timely recognizance of an evil that can and must be fought if America is to continue her defense program in an effective manner. It is up to the contractors to take their share of the precautions that will defeat the would be subverter of our defense structures.

The Man Who Keeps the Wheels Turning

By Ernest W. Fair

One of the most important factors in the successful completion of any large scale dirt moving job is the foreman. His task is as important to the contract's successful completion as the executive who originally plans the job.

MONTHLY BUSINESS INDICATORS



... I do the very best I know how; the very best I can; and I mean to keep doing so until the end. If the end brings me out all right, what is said against me won't amount to anything. If the end brings me out wrong, ten angels swearing I was right would make no difference.

Abraham Lincoln

Courtesy — The Carr Organization, Milwaukee

The growing complexity of excavation work, the advancement of tools and machinery for labor saving and the great amount of new technical knowledge have made the foreman's position increasingly important.

Realization of this has led to more and more attention being given this position during the last few years. Foremen no longer are picked solely on an impersonal basis. So important has today's foreman become to the success of the job that in every section of the country increased attention is being given to the selection and training of men qualified for this position.

Many excavating contractors are today making definite provision for the training and development of future foremen for every phase of their business.

"We have instituted positions of assistant foremen for every job," one contractor relates, "where we had only a foreman before we now have two and sometimes three assistants among the various men of the job. These men are paid a bit more than ordinary workers and know that we have all of them under consideration for advancement.

"They attend lectures and discussions by machinery company representatives and learn how every piece of equipment operates most profitably, how it should be used and how to take care of that equipment. They are required to subscribe to the leading trade journals in our field and digest every copy they receive and problems arising are discussed in weekly conferences of all these assistants and present foremen."

Other contractors carry on different types of foremanship training. Some have a schedule of instruction to which authorities are invited to speak and conduct open forums; others provide that their men attend nearby trade schools and classes on personnel management. Some are using well established correspondence courses to strengthen the knowledge of their present as well as future foremen.

"No matter what you are planning in the way of foreman training or education," another contractor advises, "so direct this education that it brings to the man a full responsibility of just what his duties are. I know for certain that very few men fully realize their responsibilities as foremen until they have been on the jobs for some time. Often costly mistakes result during that period when they are learning; if these can be avoided the firm will profit thereby."

In modern excavation work the foreman should knew every detail of every machine not only on his phase of the job but all in all other spheres of operation as well. A rough leadership is no longer enough; the increasing complexity of excavating machinery and its spreading use to replace manual labor have necessitated that he be a mechanic and technician as well.

One thing has not changed however and that is that today's foreman must be just as capable a teacher as his predecessor. Men still have to learn how to use machines, how to perform various operations and how to work harmoniously on the job. And the one man to teach them is the foreman.

In the past the contractor could take a natural leader of men and make him a foreman to get the job done; today it takes more than a boss who knows how to drive men.

Today's foreman must have the knowledge to coordinate men and to insure profits from modern excavating machinery to the greatest advantage of his employer.

1940 INDEXES AVAILABLE

Complimentary copies of Excavating Engineer's 1940 Index are available to all who request them. Address your request to Excavating Engineer, South Milwaukee, Wisconsin.

Equipment

Single drum 34-E paver

Manufacturer: Foote Company, Inc., Nunda, New York.

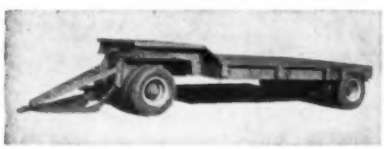
Claims: Established as highly successful for all types of concrete paving work. Thirty-four cu. ft. capacity plus 10% on a 6% grade

in accordance with A. G. C. standards—a total capacity of 37.4 cu. ft. Compactly built, easy to maneuver and transport. For transportation by trailer, the superstructure may be lowered by power after pulling out two pins. No water connections or other parts need be assembled. Has tested principles and actual successful service behind it. Double-cone drum, fully enclosed travel gears running in oil, Timken bearings on all high-speed shafts, power take-off consists of helical cut gears running in oil, a water system which is unaffected by line pressure or a change in grade. Simplicity stressed in the entire design.

Heavy-duty trailers

Manufacturer: LaCrosse Trailer and Equipment Co., LaCrosse, Wisconsin.

Claims: Constructed for operation over rough terrain with the



load platform comparatively high above the ground to allow greater

For further details about the equipment on this page please write to the manufacturer, mentioning Excavating Engineer.

wheel clearance. Similar in general specifications to the standard LaCrosse Model DF, except for its higher wheel clearance and shorter length. Rated at 16-ton capacity, these trailers are being designed especially for army use.

Hercules dump body

Manufacturer: Hercules Steel Products Company, Galion, Ohio.

Claims: Designated as "Girder-Trussed Panel Body," this unit is available in all lengths, widths, and capacities. Over 6 ft. of continuous side bracing on an 8 ft. body give this unit 4.2 times the strength of ordinary braced side body, with 30" spacing between braces. Sides supported in most

efficient manner — at the top. Large, continuous display sign panel for user's advertising purposes.

Portable engine driven generators

Manufacturer: Griffin Wellpoint Corporation, 725 East 140th Street, New York, New York.

Claims: Designed particularly for the operation of all types of electrically driven tools and flood lighting systems. Engines used are of the 4 cycle, heavy duty type and mounted so that vibration is completely eliminated. Two-wheel pneumatic tire mounting makes a light, well balanced unit that can be easily handled under all conditions. Generators driven through flexible couplings and operate at medium speeds. They are of double ball-bearing construction, designed for trouble free service. All units can be furnished with a

metal housing equipped with ventilating louvres for weather protection. Each generator has a multiple outlet box with 3 Hubbel twistlock receptacles to provide for use of several tools at one time.

Snow and ice removal blade

Manufacturer: Shunk Manufacturing Co., Bucyrus, Ohio.

Claims: Can be installed in place of regular blade on any type of maintenance or snow removal equipment without any other change in the machine. This saw-tooth blade, because of its "pick-axe" action, can cut through where a conventional type of blade stalls. Any unit equipped with this attachment needs but one trip over an icy or snow packed road to break up all irregularities, ruts, etc., and roughs up the roadway sufficiently to reduce the skidding hazard greatly. A second trip will break up frozen material, causing it to thaw more readily. Two or

more trips, following up with grader or snow plow, in most cases, removes frozen material entirely. On heavily sanded roads a

SMOOTH-EASY *Clutch operation!*

The NORTHWEST "feather-touch" does the work!

One of the many Northwests owned by the Bethlehem Steel Company on a New York elevated super-highway.

THE Main Drums on all Northwest Shovels, Cranes, Draglines, Pullshovels and Skimmers are equipped with the Northwest "feather-touch" Clutch Control, a simple mechanical device that throws the clutches *by the power of the engine.*

- **Proved by years of service.**
- **Clutch action in direct relation to the movement of operator's hand.**
- **Release is positive.**
- **"Feather-touch" band releases the moment clutch is engaged. Will not drag on the drum and burn out.**
- **No complicated delicate parts or adjustments.**
- **Nothing to refill.**
- **No high pressure lines — nothing to leak.**
- **Unaffected by weather conditions.**
- **No shutdowns due to failure of controls.**

GASOLINE • ELECTRIC • DIESEL • OIL

Built in a range of 18 SIZES 3/8 yd. capacity and Larger

NORTHWEST

NORTHWEST ENGINEERING CO., 1750 Steger Bldg., 28 E. Jackson Blvd., Chicago

certain amount of sand is dug up, thereby eliminating need for further sanding.

Pioneer "Trukbukit"

Manufacturer: Pioneer Engineering Works, Inc., 1515 Central Avenue, Minneapolis, Minnesota.

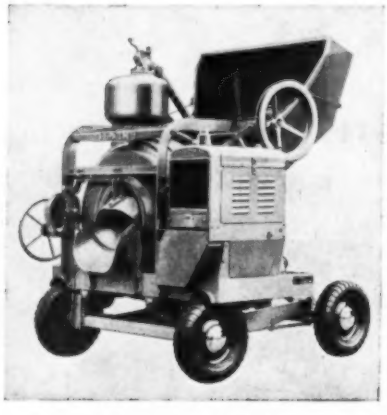
Claims: Through the use of this "Trukbukit" the number of trucks

required to transport the hand loaded rock from the quarry to the crusher is reduced. Handles and lays tile. Removes and loads piling. Handles and loads innumerable heavy and bulky objects where a hoisting unit is required. Reaches as low as 30 feet below the ground line of the truck to pick up its load.

End discharge Dandie Mixer

Manufacturer: Koehring Company, 3026 West Concordia Ave., Milwaukee, Wisconsin.

Claims: Balanced to permit high speed trailing without swaying. Reduction gear assembly is fully enclosed, running in oil. Anti-friction bearings assure smooth operation with minimum loss of power. Multiple "V" belt drive is silent, smooth running



and trouble proof. Radiator cooled engine. Discharge chute easily handled by large hand wheel operating through gear reduction. Wide 90" skip available for truck charging.

"Rex Junior" centrifugal pump

Manufacturer: Chain Belt Company, Milwaukee, Wisconsin.

Claims: This portable 1½" pump weighs only 54 pounds. Contains all the engineering features of the standard line of Rex centrifugal pumps, including the patented Rex "peeler," a device that actually peels the air from the whirling impeller and thus speeds up the prime. Has a large semi-steel recirculating water chamber equipped with an aluminum cap to save weight. Powered by a dependable, easy starting single cylinder, air cooled engine of ¾ to one horsepower. Engine equipped with an automatic governor that speeds up the motor

when the pump catches its prime and starts to lift water. Designed mainly for the contractor to pump water from excavations and to keep seepage levels low on bridge jobs, etc.

Davey Air Aristocrat compressor

Manufacturer: Davey Compressor Company, Kent, Ohio.

Claims: First application of fluid drive principle in the manufacture of portable air compressors. This principle is said to eliminate all mechanical strains on both engine and compressor, hence more economical and efficient operation. Clutch lever done away with and the unit automatically begins to function at an engine speed of 200 RPM.

Other new features include: Streamlined construction, full semi-elliptical spring mountings, and centralization of all gauges and controls on one instrumental panel. Welded joints for every connection eliminate air leaks.

Hopper-type trailer

Manufacturer: Landis Steel Construction Company, Picher, Oklahoma.

Claims: All-steel, arc welded

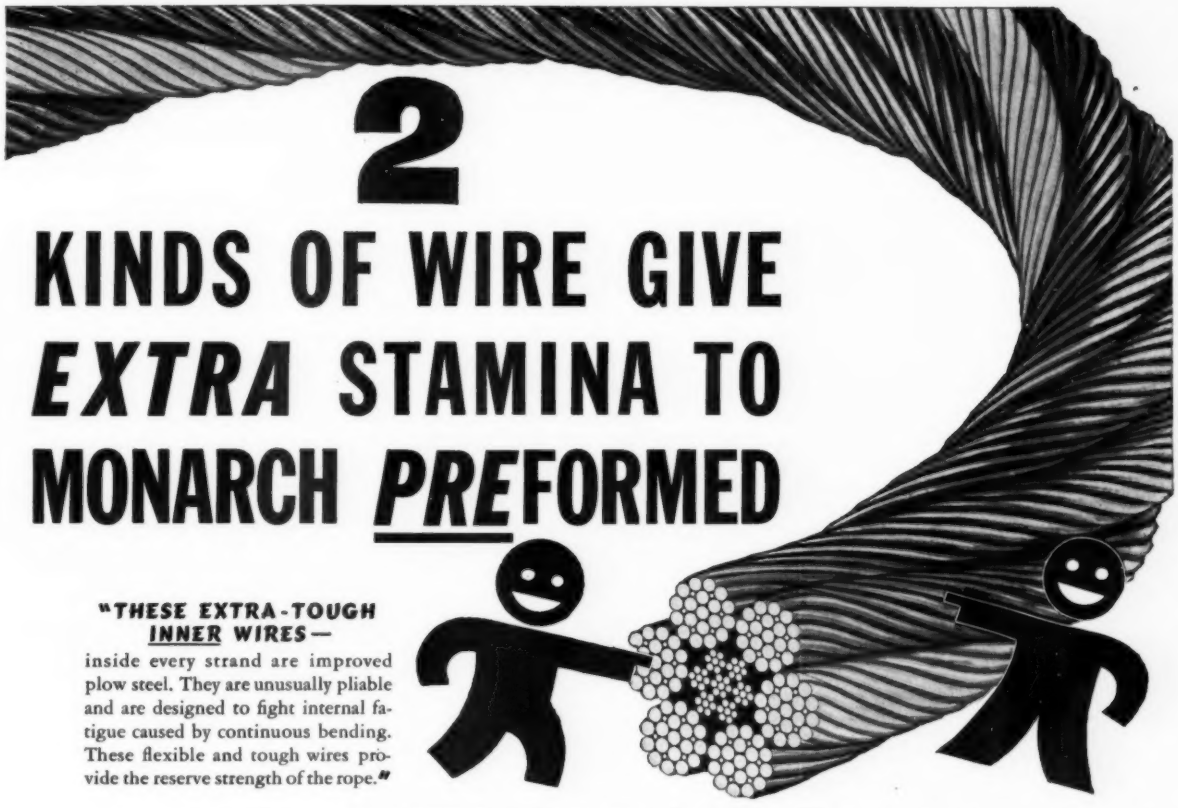
semi-trailer. Developed for efficient loading, transporting and dumping of gravel. Hoppers fabricated of 8-gauge Mayari-R steel. All welding done with shielded arc equipment supplied by The Lincoln Electric Company. Absence of projections on inner surfaces eliminates clogging and assures clean dumping of gravity-unloading equipment. Door openings in the hoppers are controlled directly from the cab of the truck. May be operated simultaneously or individually.

Air-Bloc hoist

Manufacturer: Ingersoll-Rand Company, Phillipsburg, New Jersey.

Claims: Flexible, welded, link-chain air hoist designed for light lifting jobs. Available in three sizes, identified as LC-3, LC-5, and LC-7 which are designed to handle loads of 300, 500 and 700 pounds respectively. Weighs less than 75 pounds and can be moved from one job to another. An automatic up-and-down stop control prevents damage to the hoist from overrun of chain in either direction. Another safety feature prevents the load from dropping even if the air supply fails. Four cylinder, radial-type air motor which cannot be injured by overloading. Throttle control is sensitive, permitting easy and accurate spotting of the load.

2 KINDS OF WIRE GIVE *EXTRA* STAMINA TO MONARCH *PRE*FORMED



"THESE EXTRA-TOUGH INNER WIRES—
inside every strand are improved plow steel. They are unusually pliable and are designed to fight internal fatigue caused by continuous bending. These flexible and tough wires provide the reserve strength of the rope."

"THESE EXTRA-TOUGH OUTER WIRES—
in every Monarch Whyte Strand Rope are also improved plow steel specially drawn for outside service. They are made to take the worst punishment wire ropes can be subjected to—they resist corrosion, dragging, jerking, abuse and abrasion."

AROUND BOTH WIRES AND STRANDS is a specially formulated Macwhyte internal lubricant. It protects the unseen, inside wires against damaging and costly internal friction. Ask your Macwhyte distributor about Monarch Whyte Strand PREformed. Field proved on equipment like yours, it's the CORRECT rope for your job.

PENNSYLVANIA'S FAMED TURNPIKE, now history, gave Monarch Whyte Strand PREformed many opportunities to prove again it's a "tough" rope to beat. Strong, flexible, long lasting, it lowered contractors' costs, reduced shutdowns to minimum.

NO. 513-C

MACWHYTE COMPANY
2903 Fourteenth Avenue, Kenosha, Wisconsin

Manufacturers of Rope Wire, Braided Wire Rope Slings—Monel Metal and Stainless Steel Wire Rope—Aircraft Cable—"Safe-Lock" Cable Terminals—Aircraft Tie Rods—and Wire Ropes for all requirements. New York · Chicago · Pittsburgh Ft. Worth · Portland · Seattle · San Francisco. Distributors throughout the U. S. A.

MACWHYTE EXCAVATOR ROPES

TESTED INTERNALLY LUBRICATED PROVED

The correct ropes for your equipment

PRE-FORMED FOR BEST PERFORMANCE

For your convenience in writing to Macwhyte Company, you will find a card bound in this issue.

Field NOTES

New Riprap Spreader

When the Guy F. Atkinson Company began dumping stone riprap on the upstream face of Hansen Dam in the 24-inch lift specified by the government, they found that ordinary methods of placing rock riprap were not very effective on this job. It was impracticable to unload trucks at the top of the long slope because too much lost motion was encountered in pushing the rocks down the slope with a bulldozer. It was impossible, of course, to drive the rock trucks down the face of the dam to unload.

The spreader illustrated was designed and built by the Atkinson Company especially for placing the rock blanket. It has a 15-cubic yard capacity body, which is filled by backing the loaded trucks up on a ramp at the crest of the dam and dumping them directly into the spreader bed. Sixteen heavy duty tires prevent the spreader from miring into the dam slope.

When the bed is loaded, the entire outfit is slacked down the slope from the main hoist drum of a Washington hoist anchored at the top of the dam. A Bucyrus-Erie 120-B shovel, temporarily idle, was also used for a time for this purpose. The rock spreader, reaching the bottom of the slope, dumps the rock 24 inches thick in a course the same width as the spreader bed, progressing up the slope toward the crest of the dam.

Electrically controlled and operated rollers kick the stone out with mechanism similar to that which ejected material from the old time manure spreader. The electric power cable is paid out from a drum in front of the machine on the trip down the slope, and reeled in as the empty spreader is hoisted back up to the truck unloading ramp at the top of the dam.

As each course of riprap is completed, the hoist is pulled in the direction of the work and a new course is begun. Idle earth moving equipment served at Hansen Dam for slide-over anchors.

This outfit, with the help of a crew of four men who "topped out" the riprap after it was dumped, handled from 400 to 800 cubic yards of riprap per 8-hour shift and helped to complete Hansen Dam a year ahead of schedule.

—Floyd Suter Bixby

• Top: A 10-yard load of rock is dumped into the Hansen Dam riprap spreader. Note slide arrangement of hoist and spreader platform. Bottom: Lowered by cable the spreader deposits an even layer of riprap on the face of the dam.

Emergency Throttle Sleeve Grip

The knurled throttle sleeve on many pneumatic motors, drills and other compressed air driven tools is often hard to regulate with a closeness necessary on many jobs if the hands are moist with oil or sweat, or covered with heavy gloves in cold weather. If the knurling has worn smooth the throttle is also hard to operate.

To make a convenient grip take a short piece of electrician's tape, several matches and fasten them to the grip as follows: wind one or two turns of the tape around the sleeve, then lay in three or four pieces of match, or other small slivers of wood. Wind one or two turns of tape quite firmly around them, pressing the tape

BUCYRUS MONIGHAN

Hundreds of owners have found out by first hand experience that Bucyrus-Monighan walking draglines have what it takes to handle the hard digging. The story of this 5-W, owned by A. E. Dick Construction Co., is just one example.

Working three 7-hour shifts per day, 6 days a week, for approximately one year, this rig has handled 7,000 yards of rocky overburden per day. Simple and field proven, the Bucyrus-Monighan walks and digs surely and dependably — shift after shift, year after year.

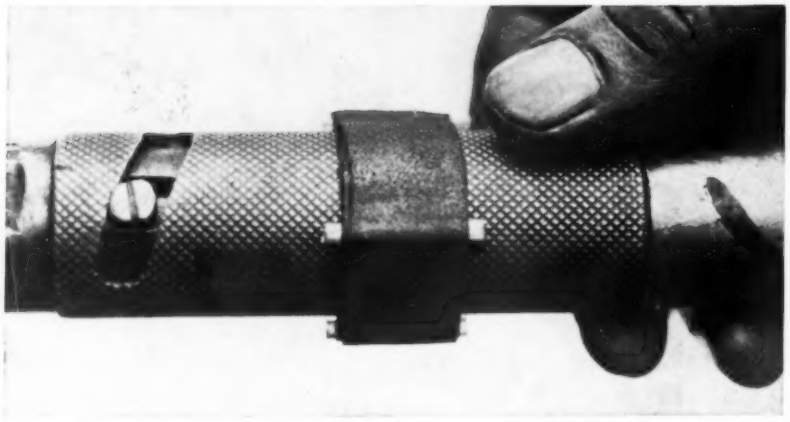
We will be glad to tell you how a Bucyrus-Monighan will fit into your work. From the 3-W (3-3½ yd. buckets, 80-90 ft. booms) to the 15-W (12-14 yd. buckets, 180-215 foot booms), every Bucyrus-Monighan machine has proved its mettle in the field.

Sold by

Bucyrus·Erie

SOUTH MILWAUKEE, WISCONSIN

For your convenience in writing to Bucyrus-Erie Co., you will find a card bound in this issue.



• **Hard-to-handle throttle sleeves can be regulated with ease by applying this tape and match stick grip.**

down to form several ridges or humps.

These ridges offer a comfortable grip to the hands, can be quickly applied as well as removed when the tool has served its purpose.

—*Frank Bentley*

Give Your Heart A Chance

Although the human heart is only about the size of a man's fist, it does an astonishing piece of work. It pumps fifty gallons of blood an hour. It never sleeps, never loafs, never takes a vacation from the beginning of life to the end. The only rest it ever gets is between beats.

And yet with all the work it has to do, the strong heart does not give out suddenly, unless it has been injured or ill-treated. It cannot, however, be expected entirely to withstand the strain of continuous over-exertion, or the repeated attacks of germs or poisons, and the possibly weakening effects of disease.

The treatment and care of the heart are better understood than ever before, yet the average man foregoes the benefit of that better understanding. Under the pressure of work he neglects his heart and unwittingly abuses it.

What should one do to keep the heart healthy?

1. Go to the doctor every year for a health examination, and follow his advice. After a serious illness, have the doctor give your heart a thorough examination. Return to active life carefully and slowly so that your heart will have plenty of time to rest from the strain.
2. Look after infected teeth or tonsils.
3. Go to the dentist regularly.
4. Keep your weight near the average, for a person of your age, sex and height.
5. Have a well-balanced diet and do not overeat.
6. Do not take medicine without consulting your doctor. Some patent cures may contain drugs that are harmful to the heart.
7. Consult your doctor about the use of stimulants.
8. Live a well-rounded life. Exercise regularly but stop before you are overtired.
9. If you have children, consult a doctor whenever one of them complains of even mild leg ache or pains in the joints.
10. Watch your child after he has had one of the "children's diseases" or any serious illness, especially rheumatic fever, diphtheria, scarlet fever, or measles. Care at this time may prevent serious trouble later.

If you do have something wrong with your heart, it is well to know it at an early stage. In many cases, heart trouble responds favorably to treatment. Often serious trouble can be put off for years, if the symptoms are detected early and proper care taken. Few people realize the wonderful work they can get from an impaired heart by using it skillfully and discreetly.

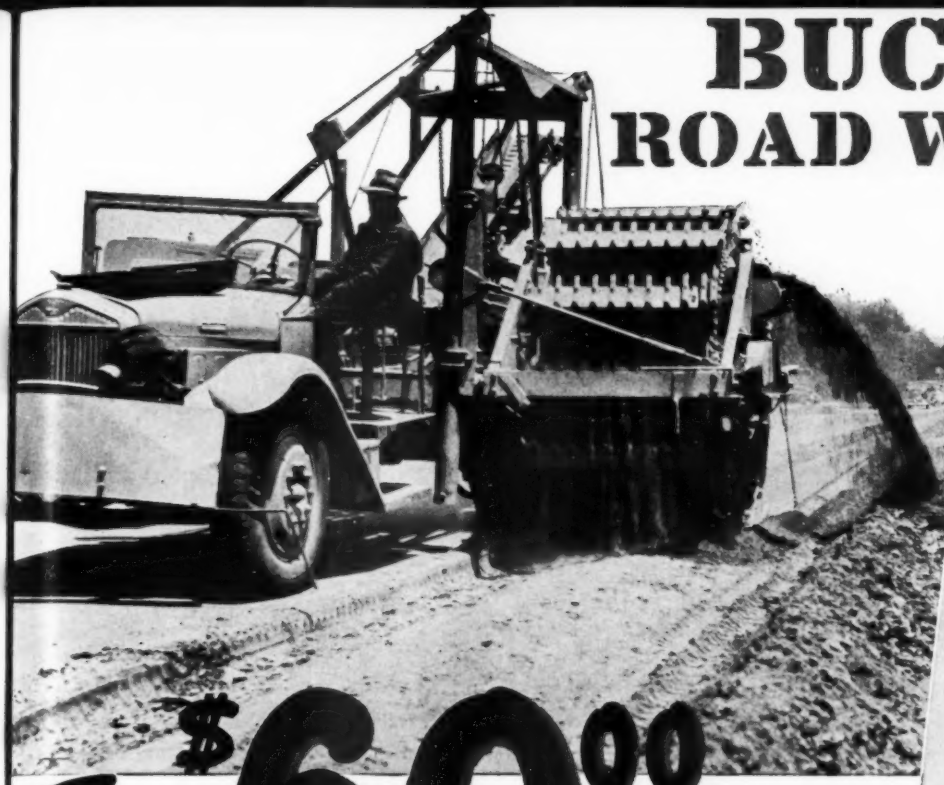
Here are some suggestions as to how to take care of a weak or disordered heart:

1. Your play and your work should be approved by your doctor. Shortness of breath may mark limit of your endurance.
2. Get plenty of sleep every night. When you sleep, the heart gets the most rest. The beats are then less frequent and the period of rest between beats is longer.
3. Stay out of doors as much as you can.
4. If your doctor prescribes a diet, follow it exactly.
5. Do not use stimulants without your doctor's consent.
6. Avoid all intense emotional disturbances.
7. Watch your habits—not your heart.
8. Find out what you may do and what you may not do, and live accordingly.

Many of the signs which you may think mean heart trouble can be caused by some other disorder. Indigestion, lung trouble, or nervousness may cause pain near the heart, shortness of breath, fainting and irregularity of beat. If you have any of these symptoms, do not try to diagnose the condition yourself, but go to your doctor for an examination. He will find out what is actually wrong, and he may be able to assure you that your heart is sound.

• **Carriers for nuts and bolts, nails and other small hardware needed on the construction job are easily made from heavy packing boxes. The partitions are cut from scrap lumber and the handles are strips of old leather belting.**

BUCKEYE ROAD WIDENER



Saves $60.00 per day

ON SOUTH CAROLINA JOB!

JOB FACTS

ONTRACT: Four foot widening on one side of Highway 117 in South Carolina between Gypso and Dudley.

ONTRACTOR: Wm. F. Bowe, Jr., Augusta, Georgia.

ETHOD OF WIDENING: Subgrade trench dug with a BUCKEYE Model 16-R-4 Highway Widening Machine. Concrete poured between existing slab and 8" steel forms.

IMENSIONS OF WIDENING TRENCH: 4'-9" wide from edge of existing slab, to allow widening and 9" for setting forms. 8 inches deep—7" for slab and an additional inch below finished finegrade for form line.

EED OF TRENCHING: Widening trench cut to specifications at the rate of a mile per day!

OLLAR SAVING: $60.00 per day saved over previous method of trenching due to speed and accuracy of Buckeye machine!

VING ON CONCRETE: Excess of aggregate on 3 miles of work done prior to use of Buckeye Road Widener was 8%. Ability of machine to cut to accurate depth reduced to 2%!

THER ADVANTAGES: Buckeye Widener served as "spark plug" or pace setter for entire job.

Go out and look for road widening jobs this year. You can bid low and make a good profit if you base your figures on using a Buckeye Road Widener for the job! Write to Buckeye today and ask for complete information and a bulletin on these money-making machines. BUCKEYE TRACTION DITCHER CO., Findlay, Ohio.

Built by Buckeye

Convertible Shovels

Trenchers

Tractor Equipment

R-B Finegraders

Road Wideners

Spreaders

NOT in the *Contract*

Running to an air raid shelter during one of Herr Hitler's daily raids over London, one cockney scrubwoman said to another: "Blimey, if these bombings keep up we'll all be blawsted to maternity."

"Righto," replied her fellow worker, "and with all these blackouts you won't even know who done it!"

Tommy was meandering homeward much later than his usual supper time. A friend of the family who happened to meet him said, "Why Tommy, aren't you afraid you'll be late for supper?"

"Nope," Tommy replied. "I've got the meat."

And then there was the old maid who always traveled in a Pullman upper because she liked to have a man under her bed.

"Do you like short skirts, Mike?"

"Naw, dey get lipstick on me shoit when I dance wid 'em."

Grinning like a Cheshire cat,
Is old maid Eliza Brewing;
The ice man this morn was so drunk, sez she,
He didn't know what he was doing.

A man was strolling down the street holding a large dog by a leash, when he met a friend. The conversation soon turned to the merits of the dog.

"Yes," said the owner, "that dog detects birds a mile away."

"Indeed," said the friend who noticed the animal sniffing nervously. "That dog acts as if a bird were under his nose, and there isn't a bird near."

The owner looked perplexed. Seeing another man near them he approached him and asked, "Pardon me, but have you a bird in your pocket?"

"No," answered the man.

After a few minutes the dog's owner said, "Excuse me, but what's your name?"

"Partridge."

"Ah!" said the owner to his friend, "that explains it."

A robber was holding up passengers in a Pullman car.

"Out with your dough, or I'll kill all the men and molest the women," he shouted.

An elderly man said indignantly: "You shall not touch the ladies."

Just then an old maid in an upper berth yelled out, "You leave him alone—HE'S robbing this train."

Drunk in the telephone booth: "Number, hell, I want my peanuts!"

"How old are you?" asked one little colored boy of another.

"Ah don't know, fo' o' five."

"Doan you know?" asked the first little boy, amazed at his ignorance.

"No."

Then the first little boy had an inspiration. "Has you eve' thought about women?"

"No," was the reply.

"Then yo' is fo'," was the triumphant conclusion.

"Have you heard how a bustle and a historical romance are alike?"

"No, how?"

"Both are fictitious tales, based on stern reality."

From one of our colleges has come the report of an artificial propagation of a rabbit, which just about takes all the fun out of being a rabbit.

First Girl: "We can get into this chorus if we just work in cahoots."

Second Girl: "Are they any scantier than what we've worked in before?"

Why didn't you catch that guy? You had bloodhounds.

Could I help it if he was anemic?

A hostess, serving her guests wine, remarked to one gentleman:

"I should not be offering you wine. You are the head of the Temperance League."

"Oh, no," he replied, "I am the head of the Vice League."

"Well," she said, "I knew there was something I shouldn't offer you."

"Miss, won't you please hike up the middle of the valley? Look what you've done to my road!"

Carving Virginia's famous "SKYLINE DRIVE"

WITH AMERICA'S LEADING "CARVING" EQUIPMENT

"SKYLINE DRIVE"—*Overlooking Virginia's beautiful Shenandoah Valley. A "Caterpillar" Diesel No. 12 Motor Grader working 14 hours a day near Afton, Va. Contractors: Walter & Prather, Morristown, Tenn.*

SCENIC TRAIL — super-highway — giant airport — mammoth dam — mighty levee . . . it would be strange, nowadays, to see a major construction project without "Caterpillar" Diesel equipment taking a prominent part. For contractors the country over have learned that where the engineering problems are great, the excavating difficult — and completion dead-lines a constant worry — there is nothing so reassuring as the power, stamina and dependability of "Caterpillar" Diesel earth-moving machinery. For "Caterpillar" Diesels can "take it" — and "dish it out" as well!

Behind a bulldozer or in front of a big-capacity carrying scraper, a "Caterpillar" Diesel Tractor can ram through rock, drive through mud, tear up, load and tote heavy clay . . . withstanding terrific punishment — handling huge daily yardages — keeping at it on twenty-four-hour schedule — operating on a consumption of low-cost fuel hard to believe for the amount of work accomplished!

With similar doggedness, and with a versatility for many tasks, a "Caterpillar" Diesel Motor Grader can likewise turn out a big day's work-volume — at an equally low operating cost. Road-bed leveling, ditch cutting, bank sloping, oil-mat mixing and spreading are some of the jobs which can keep this machine-of-many-talents profitably on the go.

And — with "Caterpillar" replacement-parts and service facilities the most complete and readily available of their kind in the world, long layoffs for repairs or overhauls are seldom necessary. For equipment to see the job through with least delay and at lowest average cost — *GET "CATERPILLAR" DIESEL.*

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

"SKYLINE DRIVE"—*From another operation, near Waynesboro. Leveling heavy rock fill with a "Caterpillar" Diesel D8 Tractor and LeTourneau Angledozer. Contractor: Sutton Co., Inc., Ashland, Ky.*

CATERPILLAR DIESEL

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TRACK-TYPE TRACTORS • ROAD MACHINERY • ENGINES AND ELECTRIC SETS

Shots from the FIRING LINE

A. C. of South Dakota Elect '41 Officers

By Floyd Emerson

George D. Douthit of the Henry Carlson Construction company of Sioux Falls was elected president of the Associated Contractors of South Dakota at the 26th annual state convention at Watertown, South Dakota, January 8 and 9. Rapid City was chosen site of the 1942 convention.

Henry H. Hackett of Rapid City, retiring president, was named vice-president; A. J. Boyce of Sioux Falls, secretary, and Herman Claus of Sioux Falls was reelected treasurer.

About 70 persons attended the sessions, which were highlighted by an address by the retiring president who called on the state's builders to be prepared "to cope with building activities which will be actuated by the national defense program, the mobilization act and industries which are pertinent to both."

"National defense," Mr. Hackett declared, "makes it necessary to organize not only a force of men from office help to laborers, but we ourselves must be properly organized to see that our efforts are given the consideration they deserve and that the building industry is not made a political plaything as it has been in the past."

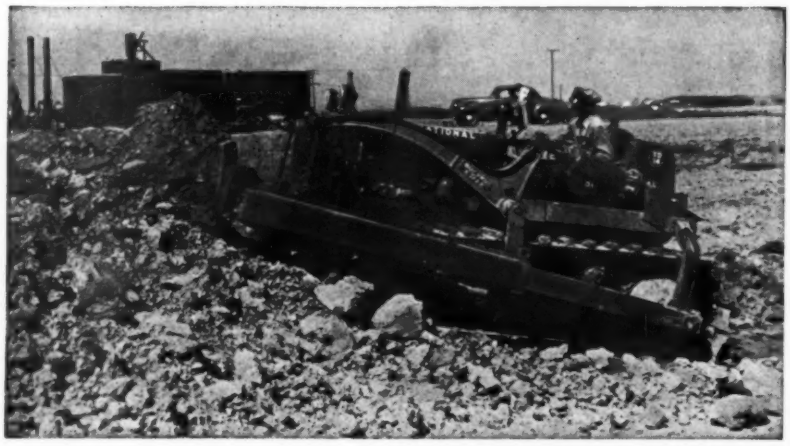
Mr. Hackett also charged that WPA has broken the law in soliciting construction work of many public groups such as cities, counties and school districts. The law states, he said, that when an expenditure of $500 or more is to be made, whether it be for public improvements, material or equipment that bids should be asked and the contract given to the lowest responsible bidder.

New Jersey's 1941 Highway Plans

A New Jersey 1941 state highway construction program of $14,915,338 was recommended by State Highway Commissioner E. Donald Sterner in Trenton recently to State Budget Commissioner Audley H. F. Stephan. In addition, the department has a construction carryover of $4,808,853 from 1940.

There also will be a joint federal-state road building program of $3,500,000, Sterner said. This amount will be expended on military roads and approaches to army posts and cantonments as decided by Federal officials.

The combination of the state program and the new Federal-State allotment would provide a total of $18,415,338 for new road construction next year, compared with $8,838,000 appropriated in the two accounts for 1940. The 1940 construction funds were raised to approximately $11,250,000, however, through transfer of revenue which had been appropriated for sponsorship of WPA projects.



• Signal Oil Company's International tractor-mounted Bucyrus-Erie bullgrader levels off some heavy material to make room for incoming drilling machinery.

NSGA and NCSA Elect '41 Officers

Meeting concurrently in Cincinnati, Ohio, on January 15, 16, and 17 with the National Ready-Mixed Concrete Association, the National Sand and Gravel Association climaxed a three-day series of round table discussions at the Netherland Plaza Hotel by reelecting their 1940 officers for 1941 terms.

Reelected officers and members of the NSGA executive committee are: Paul P. Bird, pres., Boston, Mass.; Otto S. Conrades, vice-pres., St. Louis, Mo.; H. S. Davison, sec.-treas., Pittsburgh, Pa.; Anderson Dana, New York, N. Y.; Robert Mitchell, Los Angeles, Calif; George W. Renwick, Chicago, Ill.; and John M. Settle, Louisville, Ky.

National Crushed Stone Association members also held their convention on January 20, 21, and 22 of the following week at the Netherland Plaza. J. A. Rigg of Fort Spring, W. Virginia was reelected president of the organization for '41. The following regional vice-presidents were also elected: Eastern—W. M. Andrews, New Castle, Pa.; Central—W. C. Sparks, Princeton, Ky.; Southeastern—W. T. Ragland, Raleigh, N. C.; Northern—A. J. Cayia, Manistique, Mich.; Northwestern—Porter W. Yett, Portland, Ore.; Western—A. J. Wilson, Watsonville, Calif.; Southwestern—W. F. Wise, Dallas, Texas; and Midwestern — George Hammerschmidt, Elmhurst, Ill.

"Boom Town" No. 2

By Floyd Suter Bixby

The recent movie "Boom Town," as you recall, ended with Clarke Gable and Spencer Tracy going in jointly to develop California's famous Kettleman Hills Reservation. Many people, after seeing the movie, came out of the theater believing that about all there is to the oil business is stealing some drilling machinery, doing some fast talking for a grubstake, and wildcatting the black gold up to the surface. Mixed up with those honorable pursuits was a little love-making and hell-raising on the side.

Actually, the movie was authentic in that California is rapidly developing the virgin oil territory in her boundaries; it was also authentic in showing the romance and the hard work and the glory connected with bringing in a well.

Let's take a quick look at the Signal Oil Company operations at Huntington Beach, California. The Signal Company, manufacturers of Signal products and sponsors of the national radio show "The Signal Carnival," are developing their new Bolsa lease at Huntington Beach using the latest methods and the best machinery available.

Unlike the "wildcat" operations featured in "Boom Town," the Signal Company locates wells with the aid of expert geologists. That the geologists know their business is borne out by the fact that two successful wells have already been brought in on the Bolsa lease and the Signal Company is pushing operations at full speed to ultimately bring in at least 80 wells on the 100 acre tract. Several of these new wells are now on the way down.

The drilling of Bolsa No. 14A, one of the completed wells which flows 950 barrels of clear 27.6 gravity oil and 3,500,000 cubic feet of gas daily, and Bolsa No. 15A, flowing 640 barrels of 27.2 gravity oil with 2,350,000 cubic feet of gas daily, included a lot of other work not so glorified but just as im-

CLOSE QUARTERS NO HANDICAP

Modern Bucyrus-Erie design lets you work in tight places, a feature that pays off in speed on jobs like this. Owned by Reed & Kuhn, this ¾-yard 20-B is working on a highway curve-elimination job outside Wilkes-Barre, Pa. As a shovel, the 20-B digs bridge foundations, excavates footings for arches, and grades. Converted on the job to a crane, the same rig handles concrete pouring. Clearance radius of the 20-B with standard counterweight is only 8' 5½". Other Bucyrus-Erie "handy-men" that are close-quarter specialists are the ⅜-yard 10-B, with 5' 7" clearance radius, and the ½-yard 15-B, with 7' 6" clearance radius. Write for full details.

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portant to the Signal Company. Developing these leases involved a program of leveling, road construction and hauling heavy drill supplies, which wasn't the nicest job in the world over uneven terrain slopped up with muddy tailings coming from the hole. Once in a while it was also necessary to dig an oil sump.

Signal selected a bullgrader as the answer to their problem. An International TD-14 tractor was brought in, fitted with a Bucyrus-Erie hydraulic bullgrader and front end pump. This machine did all the necessary road building, graded down the work sites for new drill locations, and found time to hook on to heavy drilling machinery weighing tons and resting on skids. These heavy loads were skidded in to the sites by brute power that didn't know how to stall or stick itself in the mud.

Engineer W. M. Greenfield of the Signal Company was actually as enthusiastic about his utility machine as he was about any other part of the drilling operations responsible for two successful wells. Greenfield claimed that the smooth power of the tractor plus the speed and dexterity of the bulldozer was responsible to no small degree for the rapid expansion of the new lease.

"That machine built roads in record time, accelerating traffic and enabling us to move equipment quickly and efficiently, thus cutting down on the lost time of drilling equipment," Greenfield explained. "I'll swear by that little rig. It hasn't given us a bit of trouble."

The success of this big first line oil company with a bullgrader as a utility machine on the job proves that it is one of the answers, at least, to the variety of work problems which must all be handled speedily and at low cost if an outfit is to keep both feet on the ground in keeping field methods efficient and field costs down.

● Frank Mashuda, Milwaukee, uses a Bucyrus-Erie 48-B on his contract to widen and deepen several places on the C & D Canal in Delaware.

IRBA Names District Officers

Four of the Illinois highway districts which have elected directors to represent them on the Illinois Road Builders Association board of directors for 1941 have been announced. A. B. McDonald of Waukegan and George Welch of Dundee will represent District No. 1, which is comprised of the counties of Lake, DuPage, McHenry, Kane, DeKalb, Will, and Kendall.

Otto A. Milburn of Rockford, District No. 2 representative, will appear for the counties of Winnebago, Ogle, Lee, Stephenson, Jo Daviess, Carroll, Henry, Bureau, and Rock Island.

The District No. 3 director is L. L. Shidler of Kankakee. Shidler will represent the counties of Kankakee, Iroquois, Livingston, McLean, Ford, Woodford, Marshall, Grundy, and La Salle.

District No. 10, which embraces all of Cook County, will be represented by five directors: Henry Fowler of John A. McGarry & Company, of Chicago; J. F. Gallagher, Gallagher Asphalt Company, Thornton; Thomas McQueen of the Thomas McQueen Company, Forest Park; Charles P. Thompson, Calumet Coal Company, Chicago; and D. O. White, White Consolidated, Inc., Chicago.

The objective of the Association during 1941 is "to see that a larger share of the motorist's tax dollar is returned to him in good roads."

Maryland's '41 Highway Forecast

Maryland highway department officials report $20,142,441 available for 1941 activities. This fund, which is about 5% higher than last year, will be allocated in the following amounts: construction $8,482,048; maintenance $4,503,073; and other work, $7,157,320.

These highway funds will be largely covered by $1,367,527 from regular Federal aid sources and $17,407,387 from state gas tax and vehicle license fee revenue.

Construction plans for 1941 call for the following: 166 miles of grading at $1,015,000; 52 miles gravel or crushed stone surfacing at $595,000; 750 miles oil treatment at $600,000; 76 miles high type paving at $3,150,000; 38 miles low type paving at $340,000; and 10 bridges totaling $2,783,000.

In addition to the above, 335,000 yards of excavation has been carried over from 1940 at an already awarded price of $105,000.

Maryland's outstanding road projects for this year will be the continua-

● Riprap rock used in the construction of Mississippi's $14,500,000 Sardis Dam and reservoir arrives on the job in removable skips hauled by flat bed semi-trailer trucks. Ten of these trailers were used by the Pioneer Contracting Company on a ten mile haul.

LeTourneau Bulldozer, Rooter and Carryalls

TAKE A PROFITABLE CUT

out of coal stripping costs . . .

Rooter gives low-cost breakage . . . eliminates blasting time and expense

By any other method, stripping 25 feet of hard, shale overburden from this open-pit coal mine, near Fayette, Missouri, would have been tough, expensive work. Morrison Hughes, Jr., quickly cleared the area of trees, brush and stumps with his LeTourneau cable-controlled Bulldozer. Next, hooked a shale-busting, heavy-duty Rooter to the same D7 tractor unit and broke up the shale rock, thus saved drilling and blasting costs.

(below) After Rooter breaks through the shale rock, Carryall starts loading.

Carryalls load, haul and dump the broken shale, complete the low-cost stripping operation . . .

Taking fullest advantage of the interchangeable feature of his LeTourneau equipment, Mr. Hughes switched from Rooter to 8-yard Carryall Scraper and moved the shale rock with the same D7 tractor. A second Carryall (of 16 heaped yards capacity), shown here with a "Caterpillar" D8, loaded, hauled and dumped still bigger yardages of the broken shale rock . . . all in one continuous operating cycle. Tough, bowl-battering material to handle, but the stout, double-bottomed Carryalls absorbed the shocks without bowl damage or distortion.

In addition to building and maintaining fast truck roads at his Fayette, Missouri coal mine . . . Mr. Hughes keeps his Carryalls, 'Dozer and Rooter earning money during the "off" season by digging stock ponds and handling other earthmoving contracts nearby. *Like Hughes, you'll find there's no end to the money-saving jobs LeTourneau equipment will do for you. See for yourself with a demonstration. Call your LeTourneau-"Caterpillar" dealer TODAY!*

CARRYALL* SCRAPERS, ANGLEDOZERS,* BULLDOZERS, ROOTERS,* DRAG SCRAPERS, CRANES, PUSHDOZERS, POWER CONTROL UNITS, SHEEP'S FOOT ROLLERS, TOURNAPULLS,* TOURNATRAILERS*

* Name Reg. U. S. Pat. Off.

LETOURNEAU

PEORIA, ILLINOIS • STOCKTON, CALIFORNIA

tion of the relocation of U. S. 40 from Rolling Road to the Baltimore City line by a dual lane highway costing $240,000. Project number 2 is a dual lane highway connection into Baltimore City from the present Baltimore-Washington Boulevard at an estimated cost of $300,000. Another important project is a dual lane highway approach to Ocean City, Maryland, at an estimated cost of $386,000.

There was no diversion of highway funds in Maryland during 1940.

Alaska's Mineral Production

With total gold production valued at approximately $25,375,000 during the past year, Alaska hit an all-time record which surpassed even the great gold rush days, W. C. Mendenhall, director of the Geological Survey recently stated in making a preliminary report of the Territory's total 1940 mineral production to Secretary of the Interior Harold L. Ickes.

This amount is nearly $2,100,000 more than the value of gold output in 1939 and brings the total value of gold production in Alaska, from the beginning of recorded mining in 1880, which was 13 years after the Territory was purchased from Russia for $7,200,000, to the present, to about $561,311,000.

Production of other minerals besides gold in 1940, including platinum metals, tin, antimony, quicksilver and coal, increased in quantity and value. The entire production of all minerals for the year was valued at approximately $27,658,000—nine and one-fourth per cent more than in 1939.

The 1940 production brings the total value of all minerals produced in Alaska since 1880 to more than $830,000,000 Director Mendenhall stated.

Ohio River Bridge Becomes Toll-Free

The $4,000,000 bridge across the Ohio River between Evansville, Indiana, and Henderson, Kentucky, will become toll-free on March 20.

Owned jointly by the States of Indiana and Kentucky, the structure was built in 1931 with the agreement that tolls would be charged until Kentucky paid off its bond issue.

Pennsylvania's Governor Urges Comprehensive Highway Program

By Bethune Jones

A comprehensive Pennsylvania highway construction program as part of the defense program was urged by Governor Arthur H. James in his message at the January 7 opening of the 134th session of the State Legislature in Harrisburg.

Asserting that "military security without adequate highways is an impossibility in these days of mechanized armies," Governor James recommended:

1—Elimination of highway bottlenecks at Philadelphia and Pittsburgh under a five-year program costing more than $70,000,000.

2—Extension of the new Pennsylvania Turnpike not only to Philadelphia but also to the Ohio line.

3—Extension of the Skyline Drive from Virginia to the Delaware Water Gap.

4—A new super highway from Philadelphia to Erie.

5—Elimination of highway bottlenecks along the Susquehanna River, and other improvements.

Although claiming the present condition of Pennsylvania's highways "surpasses anything in the state's history," Governor James told the incoming Legislature that "much remains to be done."

"The administration," he revealed, "already is moving to attack three serious bottlenecks in our highway system, any of which would impede mobilization of miliary movements.

"One of these is in Pittsburgh, where there has been worked out a program of improving the entrances to our western metropolis, with the cooperation of federal authorities and officials of the City of Pittsburgh and of Allegheny County. This program calls for the expenditure of between 20 and 30 million dollars of state funds in the next five years. "I am asking the highway department to organize a similar program for Philadelphia, calling for the use of

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$10,000,000 of state funds each year for the next five years. With the impetus of this $50,000,000 Philadelphia may receive, not only critically needed approaches to the Delaware River Bridge, but also the opening of arterial highways so badly needed to the north, south and west.

"Outside the metropolitan areas, the worst highway bottlenecks of the state are along the Susquehanna River. I am directing the highway department to proceed with surveys looking to new bridges at Millersburg and at Harrisburg.

"Even as it exists today, the Pennsylvania Turnpike will be of considerable military value. For complete service, however, it is imperative that it be extended.

"I ask you, therefore, to authorize the extension of this dream highway to the Ohio State line, as you already have authorized its construction to Philadelphia; and I further ask that you memorialize the federal authorities, emphasizing the importance of the completion of the eastern and western ends both for their domestic and their military value.

"I ask also that at the same time you memorialize the federal officials requesting, first, that the Skyline Drive be extended from its present northern terminus at Front Royal, Virginia, along the crest of Pennsylvania mountains, to the Delaware Water Gap, this work to be financed in this state as it has been in those in which it has been completed; and second, that the federal government give consideration to a new super-highway for Pennsylvania from our ocean port at Philadelphia to our lake port at Erie."

Completion of Work Assured On Upper Ohio Flood Control Dams

Even though Congress should slash appropriations for future flood control devlopment in favor of strictly national defense projects, existing funds probably will assure completion of at least six of the 10 dams originally approved for the Upper Ohio river industrial area, according to U. S. Army Engineers.

Engineers had estimated that the 10-reservoir system as programmed would reduce a flood exactly similar to that of March, 1936, approxmately 8.1 feet at Pittsburgh. Sections at that time were inundated under a 46-foot stage.

Colonel L. D. Worsham, district army engineer, predicted four of the dams now complete or nearing completion would under conditions identical with those in 1936 reduce the flood crest about 2½ feet.

The four dams included in his estimate are the Tygart river project above Grafton, West Virginia; Crooked creek structure in Armstrong and Indiana counties, Pennsylvania; Tionesta dam in Northwestern Pennsylvania and the Mahoning project at Dayton, Pennsylvania.

Work on two others, the Loyalhanna dam in Westmoreland county and the Youghiogheny reservoir near Confluence, Pennsylvania, is in the preliminary stages.

Four of the upper Ohio projects have been authorized but no appropriations have been made for them and considerable doubt attaches to the question as to whether such funds will be forthcoming in view of President Roosevelt's suggestion that Congress discourage high expenditures for public works other than defense undertakings.

These are Conemaugh river dam near Saltsburg, Pennsylvania, Red Bank creek project in Clearfield and Jefferson counties, French creek dam near Cambridge Springs, Crawford county, and the Upper Allegheny dam near Warren, Pennsylvania.

Louisiana's '40 Construction Work

Louisiana's outstanding highway construction project for 1940 was a bridge over the Mississippi River at Baton Rouge which was completed and opened to highway and railway traffic in August, 1940. This bridge provides two 20-foot driveways; two 2½-foot sidewalks and one single track railroad. The main river bridge provides approximately 1.1 miles of highway bridge and viaduct; approximately 2.2 miles of railroad bridge and viaduct;

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● Highway grade separation on east approach to Mississippi river bridge at Baton Rouge, Louisiana. The combination highway-railroad bridge is visible in the background.

also included in the project are approximately 4.5 miles of highway embankment and paving; 3.5 miles railroad embankment and track work; two highway overpasses and one highway underpass at a total cost of approximately nine and one-half million dollars.

Other bridges completed during this year include Caddo Lake, Twelvemile Bayou and Cross Bayou bridges on the Shreveport-Vivian highway; the New Basin Canal bridge on the new Airline highway at New Orleans and Charenton Drainage and Navigation Canal bridge in the Atchafalaya Floodway.

During 1940 work was started on four flood control projects amounting to $1,500,000.

Highway-railway grade separation projects were completed at Oil City, Market Street in Shreveport and at Mansfield.

Numerous paving projects were completed on Louisiana's primary system, such as Shrewsbury to Carrollton Avenue in New Orleans on the Airline highway; Arabi-Chamlette highway, approach to New Orleans from the south; approaches to the new Red River bridge at Alexandria, relocation of the Ferriday-Clayton highway and a section of the Caddo Lake-Shreveport highway. A number of other paving projects on the primary and secondary highway systems were also completed.

Hydraulic embankment projects completed in this period were the Lee-Micheaud relocation east of New Orleans and the Boutte-Mississippi River highway west of New Orleans, both on the Old Spanish Trail.

Other major embankment relocations on the primary system completed in this period were the Nesser-Mississippi River bridge highway and the Baton Rouge-Amite River highway.

Considerable progress was also made in the construction and improvement of the farm-to-market road system. A total of $2,197,000 was spent on the improvement of these roads.

Conchas Canal Operations

Excavation of a third of the 69-mile Conchas canal, main feature of the Tucumcari Reclamation project in northeastern New Mexico, has been completed, according to Bureau of Reclamation reports.

Summarizing 1940 work on the project, these reports stated that approximately 23 miles of the main canal were excavated during the year, with 12 miles more in progress. Nearly 2½ million cubic yards or 5 million tons of material were removed.

The Conchas canal is the main canal for an irrigation system under construction by the Bureau to supply water for 45,000 acres of land in Quay County. Water for the system will come from the Conchas reservoir built by the Corps of Engineers on the Canadian River for flood control and other uses.

Work on the upper 25 miles of the canal was begun in March, 1940, including the construction of 14 reinforced concrete siphons with a combined length of 6,850 feet, and three tunnels with a combined length of over 20,000 feet.

During 1940, one tunnel 2,570 feet long was excavated and concrete lining was started. A second tunnel, 7,940 feet long was also excavated for a total of 6,880 feet.

Nine of the siphons, with a total length of about 3,000 feet were also completed.

Construction cost of the project to date was estimated at approximately $2,051,588. During 1940, the project gave 905,340 man-hours of employment to Bureau and contractors' forces and 88,075 man-hours to WPA workers.

Over 86 cars of cement, 26 cars of reinforcing steel, and 20 cars of lumber have been purchased for project construction. Over 1¼ million pounds of steel tunnel supports and 702,000 board feet of timber have also been purchased and placed in the tunnels by the contractor.

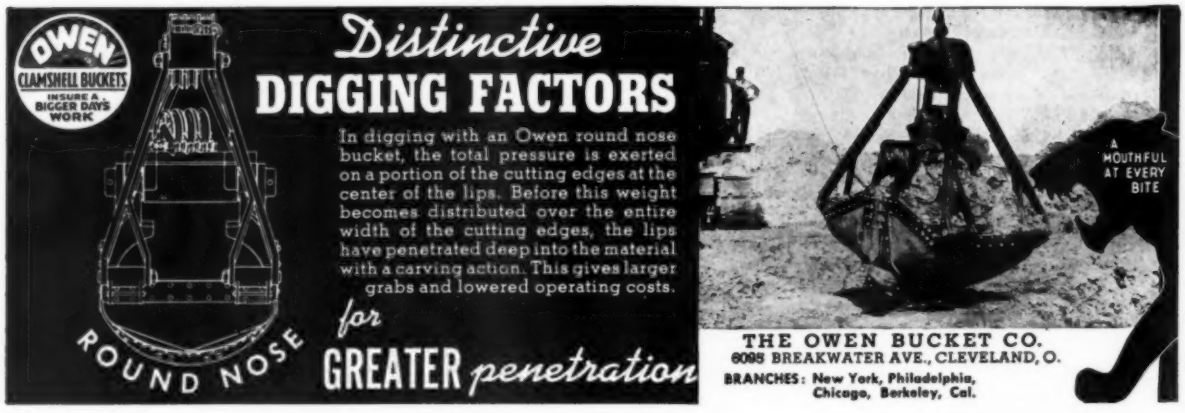
Texas Observes Highway Week

Texans have become much more "highway conscious" as a result of the initial observance of Texas Highway Week, celebrated in a highly successful fashion throughout the big Lone Star State from December 2 to 7.

The event was sponsored by the Texas Good Roads Association, an active organization of approximately 25,000 of the most civic spirited citizens of Texas interested in the proper development of state highways, with the Texas Highway Commission and Highway Department cooperating.

Prominent state figures and civic leaders of counties, cities and towns of the state joined in putting over the first observance of Texas Highway Week and in arousing greater interest on the part of the state's citizens to their highways and highway needs. Active chairmen were named in almost all of the 254 counties of Texas to arrange programs, and more than 700 talks were given in all parts of the state during the observance.

It was emphasized how Texas' highway needs have grown more imperative because of the importance of the Texas highway system in the national defense program with the big Border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Blocks and Linings

Beco Blocks and Linings take the heavy loads at the increased speeds demanded of modern excavating equipment. These Beco products are durable and tough — that's why replacements and adjustments are less frequent.

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Bulldog wedge rope sockets never fail. The harder the pull . . . the tighter the grip! Attachment is easy and quick and directly in line with pull, eliminating costly kinks. Made in a dozen sizes and four different styles. Write for bulletin.

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Selected by the men who build your excavating and drilling machinery, Bucyrus-Erie rope has the special features that spell better performance. B-E wire rope has a uniform high quality, and comes in the right sizes, types, and construction for your exact needs. Send for wire rope bulletin.

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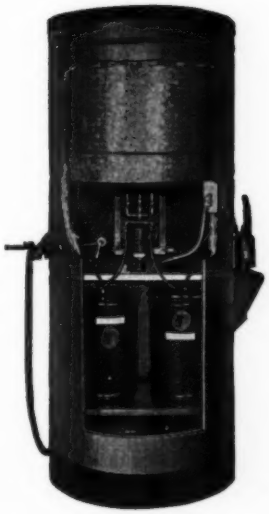
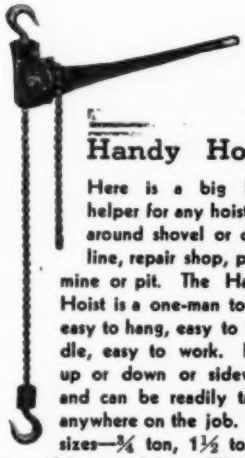
With the NEW Bucyrus Oil Reclaimer, used oil is reclaimed by a simple washing and filtering process at an average cost of about nine cents per gallon. It is a scientific fact, arrived at by leading research engineers and chemists throughout the country, that engine-use breaks down only the weaker and unstable molecules of your oil. These constitute about 10 per cent of the oil—the other 90 per cent, the strongest particles of the original oil, can be separated and cleaned for re-use by the NEW Bucyrus Oil Reclaimer.

Investigate the possibilities of the Bucyrus Oil Reclaimer before you discard another quart of used oil.





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BUCYRUS-ERIE

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● **Drainage trenches at the Saskatoon airport, Saskatchewan, Canada, were excavated by this Model 160 Buckeye Trencher owned by the W. C. Wells Construction Company.**

State having about one-twelfth of the nation's entire strategic military highway network within its borders.

The Texas highway financial picture was stressed by speakers and by information disseminated at celebrations, meetings and various organization gatherings during the week. Efforts were concentrated on bringing greater public realization to the vast amount of work yet needed on the Texas highway system to bring it up to present day needs.

The state system of approximately 26,500 miles of highways is only one-half completed to modern standards, and it is estimated it would take approximately $570,802,000 to bring the system up to the needs of today. The Texas Highway Department receives $30,000,000 a year in revenue for construction, however, and it would take 19 years to do the job that is needed now, according to estimates.

The Texas Highway Commission and Department, the Texas Good Roads Association, other agencies and state leaders are pushing efforts to obtain additional Federal aid money from national defense appropriations to speed up the construction and improvement of the military network to minimum standards. It is estimated it would take seven years to do this with the amount of money now available to the state highway department annually from all sources.

Army Airport Construction

A recent War Department ruling, made presumably to make use of the efficient organizations of the Army Engineers in the new defense expansion program, has directed that the U. S. Army Engineers supervise all work pertaining to construction and Air Corps stations in the United States. This ruling will insure expert professional and technical supervision of the new work program. Vast allotments for air field work made necessary the trimming of regular allotments for civil functions work usually done by the Engineers.

Transferred by the order are airports at Salt Lake City, Utah; Ogden, Utah; Tuscon, Arizona; March Field, Riverside, California; Wendover Field, Utah; Muroc Dry Lake, California; and Mines Field near Los Angeles. March Field at Riverside has been for years a small training center for army pilots and for the past several years the Army has maintained a bombing practice range at Muroc Dry Lake.

Construction on most of the fields is typical in that it calls for excavation, grading, surfacing and stabilization of bases for runways, and the erection of various hangars and appurtenant buildings. The work at Mines Field near Los Angeles, already under way by the Quartermasters Corps before the shift of responsibility, is typical of most of the other work and represents to a great degree the general program to be followed in airport construction throughout the country.

All excavation, grading and surfacing was done with contractor's rented machinery. A fleet of International TD-18 and TD-14 tractors was used to pull scrapers, sheepsfoot rollers and graders. Bucyrus-Erie hydraulic bulldozers and front end pumps were mounted on three of the tractors engaged in grading and rooting and P-24 power control winches were used throughout on the tractors towing scrapers. A Galion motor patrol and a Galion grader drawn by one of the tractors was used to do fine grade work on the stabilized base. Compaction of the base was done with sheepsfoot rollers after being mixed with cement and water.

The location of Mines Field is near Inglewood, in a comparatively flat section lying over the most active earthquake fault in the Los Angeles vicinity. Not enough of the top layer of earth was ever scratched away to be bothered greatly by ground water, and it is not likely that drainage at any of the other locations will be a very great problem.

Construction of these terminals, and particularly the ones added around Los Angeles, will provide landing and take-off facilities for the ever increasing horde of planes being turned out daily at the large aircraft factories at Burbank.

● **An International equipped with a Bucyrus-Erie 'dozer leads a squad of fill compacting equipment over the stabilized subgrade of the Mines Field airport.**

"Doodlebugging" With A Walking Dragline

By Floyd Suter Bixby

Six miles from the Oregon state line, where the Klamath River winds through tranquil forests, a 5-W Bucyrus-Monighan is helping Larsen Brothers and Harms Brothers, contractors of Hornbrook, California, boost the "doodlebug" mining output on their Klamath River plant by 1,000% over what was considered a day's work only a few years ago.

To be trite, there's gold in them there hills. The Forty Niners panned it out by hand. Later, a few hundred yards of the gold bearing gravel was handled in a day. A few years ago dragline mining, called "doodlebugging" for want of a better term, shoved production up to a thousand yards a day. Larsen and Harms have set up a plant which can and does handle 8,000 cubic yards of gold bearing gravel in 24 hours.

They use a Bucyrus-Monighan 5-W machine, swinging a 4½ yard Esco bucket on the 80 foot boom. The 5-W is a special job. It is equipped for extra high hoisting speed, resulting in increased output. Powered with a Fairbanks-Morse 300 HP full diesel engine driving a 240 kw generator of the same manufacture, this machine digs 400 cubic yards per hour. According to Larsen and Harms, a walking dragline is better fitted to doodlebug excavating than the conventional type. With a bearing area of 452 square feet on the digging base and 200 square feet on the walking shoes, the 5-W digs comfortably in ground that would mire crawler machines, of the same capacity. The length of the boom lets this machine dig deep through the Klamath River deposit averaging 23 feet deep, and in some places it is necessary for the bucket to go down through a 30 foot layer. From 5 to 10 feet of overburden is stripped with a D-8 Caterpillar mounted LeTourneau bulldozer.

Larsen and Harms have incorporated

many advanced features into their diesel electric Bodinson boat. It uses a Fairbanks-Morse engine and generator of the same capacity as that used on the Monighan. The generator supplies power for a 50 HP trommel motor, a 20 HP stacker motor and a 100 HP pump motor. The trommel and stacker are chain driven; the pump is connected direct. Gravel from the Monighan goes through a 14 foot square hopper with grizzly rails into the 47 foot trommel, 6 feet in diameter with 3/8" and 5/8" perforations.

Below and on the center line of the trommel is a "boil box," divided into 14 compartments; one for each riffle table. Boiling action of water coming from the trommel into the boiling box gives results similar to a jig, causing heavier concentrates to settle in the bottom. This box removes about 50% of the gold, with the balance recovered in quickboxes and Hungarian riffles. Fourteen riffle tables on each side of the boat run to 3 downstreams which carry fine tailings to the pond. The 85 foot stacker, equipped with a 42" conveyor belt with lateral molded rubber ribs, can be tilted to a greater angle than normal, speeding up operations where the gravel is deep and the output high.

OBITUARIES

Porter William Gifford

News of the death of Porter William Gifford, president of Gifford-Hill Construction Company, Dallas, Texas, comes as a deeply felt shock to his many friends in the excavating industry.

Mr. Gifford died January 7, at his home in Dallas.

A native of Davenport, Iowa, Mr. Gifford began his business career at the age of 17 as a timekeeper for a railroad contractors' firm. He later became bookkeeper and superintendent of construction for the Walsh Construction Company.

He helped form the Walsh, List & Gifford Construction Company, of which he was vice president until 1904, when the List & Gifford Company was begun in Kansas City.

Mr. Gifford was vice president of that concern, and in that capacity first came to Dallas in 1917 on a grade separation project for the M. K. T. lines through the Oak Lawn section of Dallas.

He remained in Dallas, head of the local office, until the dissolution of the company in 1924. He then organized a company of his own and concentrated, along with construction, in the production of sand, gravel and crushed stone.

With Rutledge J. Hill, Mr. Gifford organized the present Gifford-Hill Company in 1926, and became president of the concern.

At the time of his death, Mr. Gifford was president of Gifford-Hill & Company, Gifford-Hill Pipe Company, Coastal Plains Supply Company and the

Evangeline Railway Company.

He was also controlling underwriter of Employes' Lloyds Insurance Company. He was a director of Dallas Concrete Company, Trux-Mix Concrete Company, North Texas Materials Company and of the Southern Old-Line Life Insurance Company.

For the last two years Mr. Gifford had served as a member of the Dallas city-county hospital board. He was a member of the Highland Park Methodist Church and of the Masonic organizations.

Mr. Gifford's construction work carried him over a large part of the North American continent. In his early days he had been in Montana, and during the early '20s he constructed railway lines in Honduras, Nicaragua and Panama for the Vaccaro interests in New Orleans.

Among the many jobs accredited to Mr. Gifford, are the M. K. T. grade separation through Oak Lawn, the Southern Pacific belt line at Dallas, the Texas and Pacific yards at Dallas, the sewage treatment plant at Dallas, and parts of Dallas' Corinth and Cadiz Streets.

Surviving are his widow; two daughters, Mrs. W. J. Parish of New Mexico, and Mrs. Lucian Touchstone of Dallas; a son, P. W. Gifford, Jr., of Dallas; a sister, Mrs. C. S. Lewis of Iowa, and one grandson, Gifford Touchstone of Dallas.

William Bodette

The death of William Bodette on January 10 at his home in San Diego, California, marks the passing of another member of that rugged group of old time steam shovel men.

Mr. Bodette, who would have been 81 years old next month, was born in Toledo, Ohio, on February 29, 1860. He left Toledo in 1906 to work in the Panama Canal where he arrived in time to see the first dipperful excavated and remained to witness the first boat pass through the "big ditch."

In 1918 Mr. Bodette left the Panama Canal and moved his family to San Diego where he retired.

William Bodette is survived by his wife and four married daughters living in California and a brother, Captain Edward Bodette of Toledo, Ohio.

Sauerman LONG RANGE MACHINES

25 h.p. Sauerman Drag Scraper machine loads material from wide cut into trucks at rate of 27 cu. yds. per hour.

10 to 1000 cu. yds. per hour —in dry ground or under water

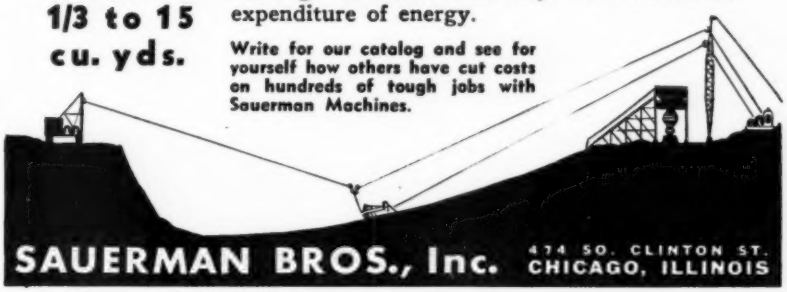
You can cut costs and increase your profit on long range materials-handling jobs if you'll install a SAUERMAN Power Drag Scraper or Cableway Excavator.

These machines are unequalled for moving sand, gravel, blasted rock, clay, loose ore, etc., anywhere up to 1500 ft., can be depended upon to deliver a specified hourly yardage to any point along the line of haul at lower cost than any comparable equipment.

Too, the operation of a SAUERMAN Machine is easy work as the operator controls the machine from a comfortable operating cab, permitting maximum efficiency with minimum expenditure of energy.

BUCKETS 1/3 to 15 cu. yds.

Write for our catalog and see for yourself how others have cut costs on hundreds of tough jobs with Sauerman Machines.



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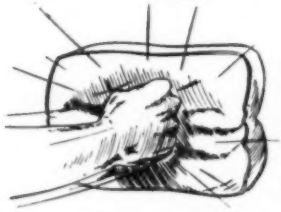
GARGOYLE VISC

"Shock A



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75 YEARS' PIONEERING
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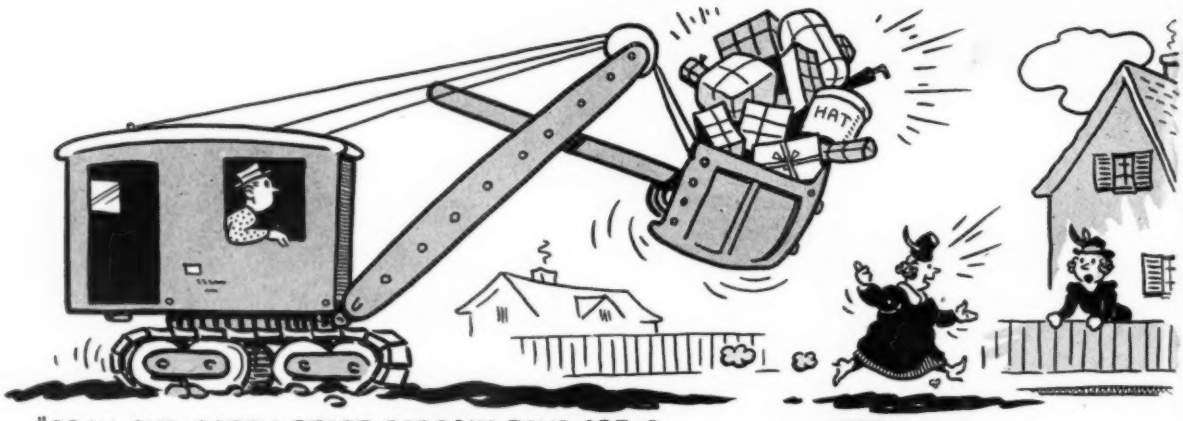
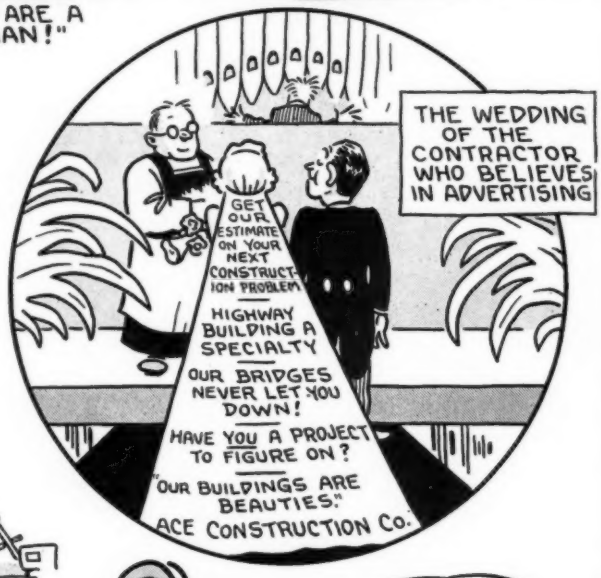


"CASH-AND-CARRY STORE BARGAIN DAYS ARE A CINCH SINCE I MARRIED A SHOVEL MAN!"

EX-LAFFS

by

GRAHAM HUNTER


THE WEDDING OF THE CONTRACTOR WHO BELIEVES IN ADVERTISING
GET OUR ESTIMATE ON YOUR NEXT CONSTRUCTION PROBLEM
HIGHWAY BUILDING A SPECIALTY
OUR BRIDGES NEVER LET YOU DOWN!
HAVE YOU A PROJECT TO FIGURE ON?
"OUR BUILDINGS ARE BEAUTIES."
ACE CONSTRUCTION Co.

"WHY CARRY DYNAMITE WHEN WE'VE GOT A MASCOT!"

Iowa Hill Movers

(*Continued from page 99*)

point on the job a small stream diversion was necessary. Though the creek channel was only 20 feet wide, they were able to load the big scraper, turn, and come back out the open end of the channel. This maneuverability was also a big advantage when the grade had to be kept clear for the Koehring Wheelers; the operators had no difficulty in making sharp turns and staying out of the road of the fast-stepping Wheelers.

Well, Gus Pryor gets to town in a hurry now. Climbing over that hill is a thing of the past. Jubilantly he whizzes by in his old Model T, jubilantly and perhaps a little too hurriedly. He doesn't like to linger over long in that cut, for maybe they just missed his dynamite? Maybe it's just behind that backslope? Maybe some day it'll blow the rest of that hill all over the new road? Gosh, sure can travel going to town, though.

Kentucky Dam

(*Continued from page 95*)

river sand is being used for fine aggregates, the river gravel was found to be unsuitable for coarse aggregates. River sand is dredged, screened and delivered under private contract. The coarse aggregates come from a TVA limestone quarry seven miles upstream. At the quarry, two Bucyrus-Erie 75-B, 2½ cubic yard and two Marion No. 4101, 2½ cubic yard electric shovels are being used in loading the rock to trucks for hauling to the crushers.

Aggregates are loaded to 60-ton bottom dump gondola cars and transported over a specially built railroad to the screening plant located near the mixing plant at the dam site. From the mixers a conveyor belt carries the mix to transfer hoppers in the lock area. The concrete is trucked from the transfer hoppers, in White 15-T trucks, to the placing equipment. Two American Revolver 50-ton cranes are used in pouring operations. Swinging 4-yard buckets in a radius of 125 feet, these cranes are keeping abreast of pouring schedules.

Plans call for fitting the lock with temporary gates so that river traffic may pass when the other section of the cofferdam is erected across the present navigation channel. First lockage through the temporary gates will probably be in January, 1942, while it is expected to close the dam in January, 1945, and complete the work the following June. Actual construction work on the dam started in July, 1938.

In building the dam, approximately 3,314,000 cubic yards of earth and about 315,000 cubic yards of rock must be excavated. In addition, 1,800,000 cubic yards of mud, clay and sand must be dredged from the boat channel before completion. Riprap and gravel to the amount of 538,000 cubic yards will be needed, the riprap to be used on the face of the earthen section of the dam. The dam itself will require an estimated 1,092,000 cubic yards of concrete and the earthen section will require an estimated 4,227,000 cubic yards to complete.

TVA personnel at Kentucky Dam is headed by George P. Jessup, project manager. James B. Hays is construction engineer and B. S. Philbrick is construction superintendent.

Linton Mine

(*Continued from page 101*)

of Hercules powder. The 5480 digs and casts 29,000 yards of rock in 24 hours while the 480 loads 2,000 tons of coal in each shift. Two bulldozers are used to keep the coal bed clean and the haulage roads in condition. An Allis-Chalmers tractor on rubber tires, with a Baker bulldozer muscles in on the stripper while a Bucyrus-Erie bulldozer on an International TracTracTor is utilized between the stripper and the loader.

Linton operations are headed by George W. Rea, general superintendent; T. L. Lynch, superintendent; James Harmon, master mechanic; J. E. Winters, construction engineer and Jack Spice, agent. Other Maumee mines are located at Gilmore (No. 18 and No. 25), Riley (No. 20) and Brazil (No. 17).

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All sizes available. Wire or write for prices. Descriptive Bulletins on request . . . Buckets in stock at New York, Hartford, Philadelphia, Harrisburg, Baltimore, Atlanta, Birmingham and Los Angeles.

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144th St. and Park Ave., New York, N. Y.

Portable Conveyors — Truck Loaders

For your convenience in writing to Haiss Manufacturing Co., you will find a card bound in this issue.

● Holes, spaced 25 feet apart and 8 to 10 feet in depth, are drilled by air hammers preparatory to blasting a ledge of "gyp" loose for the waiting shovel.

"Gyp" Quarry

(Continued from page 97)

with a Crook blade. This machine was used to push boulders aside and doze out sites for haul roads. A Bucyrus-Erie 10-B shovel was brought in to fill gullies and help out with the pioneer work.

The roar of the initial blast had scarcely ceased to reverberate in echoing thunder from the peaks across Quatal Canyon when the first big job problem looked Superintendent Lange squarely in the eyes and made him scratch his head for the answer. Blasting, which is secondary shooting in general owing to the seamy character of the main deposit, disclosed that the gypsum had a stubborn tendency to fracture and shatter to a great extent under explosive action. Gypsum spalls and quarry chips lost in the waste material and hauled away to the scrap heap with other refuse stripping cut down effective production. In a gypsum quarry this production loss not only reduces the output per shot but requires extra machine hours to haul the stuff away with other objectionable matter. So the program was revised to provide shallower drilling, lighter loading and reducing the size of the boulders wherever possible by the following method.

Gypsum Blasting Procedure

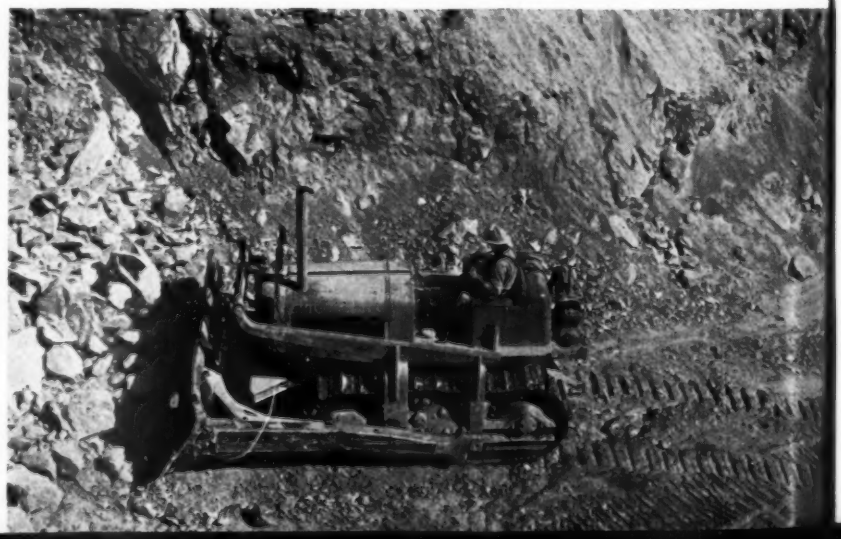
A Sullivan 105 cubic foot compressor, pulling one Sullivan and one Cochise air hammer is used to drill the holes. The gyp deposit, composed of large boulders and seamy masses, makes the location of the holes more a matter of guidance from past experience than of following any engineering principle. In general the holes are spaced 25 feet apart and drilled from 8 to 10 feet deep. In cross section they are 2⅛ inches in diameter at the top and 1¼ inches in diameter at the bottom. About ¾ pounds of Atlas, Giant and Hercules granular powder per cubic yard is used to roll a ledge down to the quarry floor just below.

Each blast dislodges many tons of gypsum ore which tumbles down to the loading level. Huge boulders lying more or less embedded in the formation break loose to roll out in the open down below.

These boulders, along with smaller pieces of ore that have scattered, are rounded up after the blast with the Allis-Chalmers HD10 diesel tractor. This machine bunches them back against the rest of the dislodged material while the Bucyrus-Erie 10-B shovel crawls back into the quarry. During blasts, of course, this machine is moved 400 or 500 feet out on one of the haul roads, but the fast crawling speed of this little excavator coupled with the coordination of the work never results in very much lost time.

The whole order of work in this mine is based on an unusually well coordinated system of adapting the work program to improve the efficiency of the equipment. To the engineers or construction executives reading this who believe that a ⅜ cubic yard shovel is not very well adapted to quarry production, Superintendent Lange has an answer well worth listening to.

● Rock scattered by a blast is 'dozed into a pile for the loading shovel by an Allis-Chalmers tractor.



Production Rate of Plant

The whole output of this mine revolves around a monthly production rate of 1,700 tons per month. That is the amount required by the Monolith Company at Tehachapi. Along with that, bear in mind the specification requirements which insist that the finished product leaving the quarry be 90% pure gypsum, with 4% of lime and 6% of solubles allowed.

Then think of the contract price of $1.30 per ton which includes everything that happens from the time the ore is blasted until it comes off the conveyor belt at the crusher, ready for transportation to the mill. It's fairly obvious that the method has to be economical and efficient, isn't it?

As soon as the 10-B gets in to the loading site, Superintendent Lange is ready to show an impressive answer. First of all, the 10-B controls the cleanliness of the product. Although less than 25% of the deposit is composed of stripping, still the small size of the dipper on the 10-B makes it easy for Operator Vic Le Vezu to pick out the gypsum chunks from the dirt. As soon as enough dirt and refuse accumulates for a truckload, it is loaded out into a truck. There's always one handy, which illustrates again how Mr. Lange has coordinated his work to show the equipment up to better advantage. He

always has a truck waiting at the shovel.

When Mr. Lange told that to this writer, before I looked at the quarry, right quick a question popped into mind.

"Whoa, there," I said. "Let's hear all about these two trucks you always have waiting at the shovel. You're wasting the driver's wages every minute he sits there not being loaded, aren't you?"

Superintendent Lange smiled. "Well, you see," he explained, "our crushing plant can handle just so much ore. Say that we have reached a production of 35 tons per hour, which in 90 days is our goal. The 10-B will very easily load and sort that out. But one truck hauling would tie up the shovel between trips. No, it's a two truck job."

"Then this second truckdriver's wages is a sort of necessary evil, is it?", I countered. "In other words you figure it's cheaper to stand 50% efficiency from the trucks than to lose shovel time."

"No, I get 100% efficiency out of my trucks, too. Come up in the quarry after lunch and I'll show you how. I'll meet you up there."

The answer was plain enough for anyone to see. Lange was getting the job done without even ONE truck driver! It was no wonder that he had disappeared from the camp after lunch.

For E. C. Lange was driving both trucks himself! Two Fords, one a 4-yard and one a 5-yard dump truck, were both being used with no delay for the shovel. While the little 10-B sorted out a beautifully clean load of gypsum in one truck, Lange was busy hauling a full load to the crushing plant in the other truck. Returning, he jumped from the cab, got into the truck just loaded out, and was on his way while the 10-B poured the first dipperful into the newly arrived empty. In this manner Lange keeps the shovel busy, the trucks busy, and the crushing plant working at capacity.

Digging and Hauling Costs

And about economy. Mr. Lange likes to know that he's producing this material for 75 cents per ton or thereabouts. His cost summary of the shovel operation set up on a sliding scale is as follows:

(This cost does not include other equipment, blasting and overhead.)

GENERAL WORK INFORMATION:

Loading gypsum into 2 trucks for transportation to a crushing plant.

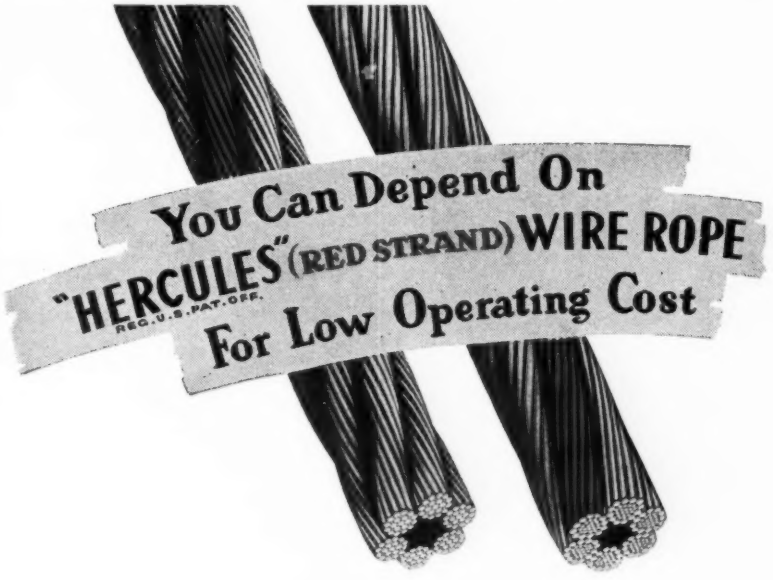
TYPICAL SHIFT EXPENSE:

1 shift foreman (proportional expense)—4 hours @ $1.00 per hour	$ 4.00
1 shovel operator—8 hours @ $1.00 per hour	8.00
16 gals. gasoline @ 12c	1.92
1 quart motor oil @ 25c	.25
2½ pounds grease @ 25c	.63
8 hours machine upkeep @ $1.00 per hour	8.00
8 hours item incidentals @ 25c	2.00
Total field operating cost per 8 hours	20.80
Total field operating cost per 1 hour	2.60

UNIT COST:

If machine loads:	It costs:
200 tons per shift	10.4c per ton
225 tons per shift	9.3c per ton
250 tons per shift	8.3c per ton
275 tons per shift	7.6c per ton
280 tons per shift	7.5c per ton
300 tons per shift	6.9c per ton
350 tons per shift	5.9c per ton
400 tons per shift	5.2c per ton
450 tons per shift	4.6c per ton
500 tons per shift	4.2c per ton

Mr. Lange figures that the loading cost under this setup certainly



Correct construction is also an important factor in wire rope economy. In "HERCULES" there is a right rope for every purpose, as it is furnished in both Round Strand and Flattened Strand constructions—all of which are available in either the Standard or Preformed type.

PRODUCTION requirements must be met. Why not let "HERCULES" (Red-Strand) Wire Rope help you meet this demand and still maintain a reasonable margin of profit?

You can rely on "HERCULES" to keep costs down, because it is made on the principle that—*"With wire rope it pays to use the best"* . . . In its entire process of manufacture, exacting tests and rigid inspections leave nothing to chance. All this, plus manufacturing efficiency, means longer rope life at no higher cost.

You will quickly discover that "HERCULES" (Red-Strand) Wire Rope is a dependable ally—not only in today's fight against increasing operating costs—but also in your endeavor to speed up production. Specify it on your next requisition.

MADE ONLY BY
A. LESCHEN & SONS ROPE CO.
WIRE ROPE MAKERS — ESTABLISHED 1857
5909 KENNERLY AVENUE — ST. LOUIS, MISSOURI, U. S. A.

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SEATTLE • • 3410 First Avenue South

For your convenience in writing to A. Leschen & Sons Rope Co., you will find a card bound in this issue.

helps to bring the cost of his finished product down.

The gypsum is all broken down to about 150 pound size with rock gads in the jackhammers before loading. When it is dumped into the crushing machine it is broken down still further.

Here the material is dumped directly on top of a 30 foot rail grizzly with the rails set at a 35 degree angle off the horizontal. The one man who runs the crushing plant throws out any pieces of clay or dirt not sorted by the Bucyrus-Erie 10-B. Large pieces of ore retained on the grizzly drop off at the bottom end into an 18"x36" Good Roads jaw crusher, with the jaws set for 3-inch clearance. This primary crusher, powered by a Holt 75 gasoline engine, pulverizes the ore into fine pieces, but still the ore has another beating coming. Dropping into the secondary crusher, with jaws set at 1½ inches, the ore is reduced to aggregate size. It then falls into a revolving trommel screen 9 feet long with scientifically controlled mesh widths which cleans the ore still further.

The first 6 feet of this screen has 2-inch openings. The clean pieces of gypsum passing this screen drop onto a conveyor belt driven by a Chevrolet engine which takes it out to the stockpile. Large pieces still retained here are bypassed again into the secondary crusher to be worked over.

The clay and fine particles drop out of the last three feet of the revolving screen, with mesh openings of ¼-inch. This waste material drops into a pile to be wasted. The terrific beating and shaking action of the machinery gets out all the dirt and objectionable matter within the specification tolerance. Laboratory samples for analysis are taken at regular intervals.

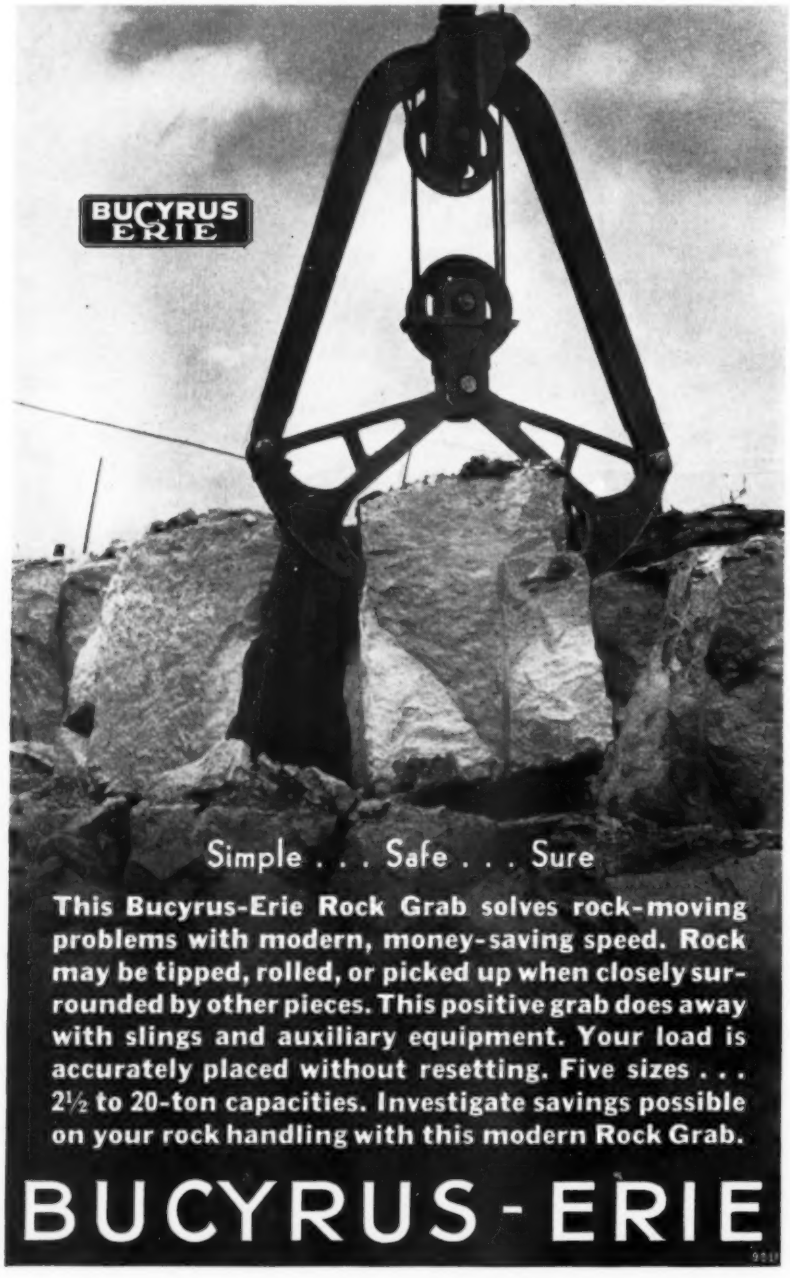
Shipping Finished Product

The finished product falls off the conveyor belt to a stockpile. A subcontract has been let to N. S. Bryant to haul the ore to railroad cars at Maricopa, 35 miles away. The crushed gypsum is loaded out of the stockpile into two Ford transport trucks with 11 ton trailers by a Model WM Allis-Chalmers tractor equipped with a ½ cubic yard Hough loader. In between loads this machine removes the fine waste from the plant site or idles while the operator helps around the plant.

It is a nice setup. All repairs have been so minor that they have been done on the job. The Bucyrus-Erie 10-B was overhauled before being put on this job and the Allis-Chalmers machines have stood up very well too.

"Aw, Hell," laughed Superintendent Lange, "Crook Company machinery never breaks down anyway!"

The men of the quarry live nearby with their families in a camp of trailers. Life in camp is as well ordered in this wild region as if the men were all working in some large city. When noon comes, everybody goes "home" to eat lunch in camp nearby. The women gather together in the afternoons to have tea, or sew, or keep in tune with the changing times by listening to the radio. Once in a while they drive the 35 miles to Maricopa to see a movie.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ERIE
Simple . . . Safe . . . Sure
This Bucyrus-Erie Rock Grab solves rock-moving problems with modern, money-saving speed. Rock may be tipped, rolled, or picked up when closely surrounded by other pieces. This positive grab does away with slings and auxiliary equipment. Your load is accurately placed without resetting. Five sizes . . . 2½ to 20-ton capacities. Investigate savings possible on your rock handling with this modern Rock Grab.
BUCYRUS-ERIE

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Where to Buy BUCYRUS ERIE and BUCYRUS MONIGHAN Products

For Shovels, Draglines, Cranes, Clamshells, Skimmers, and Dragshovels 'Phone or Write the Nearest Dealer or Branch Office Listed Below.

For Large Shovels and Draglines, Walking Draglines, Bucyrus-Ruth Excavators, Blast-Hole, Prospecting, Oil Well, and Water Well Drills, 'Phone or Write the Nearest Bucyrus-Erie Branch Office Indicated Below with an *

ALASKA: (See Washington, Seattle).
ARIZONA, PHOENIX: O. S. Stapley Co.
ARKANSAS, LITTLE ROCK: Lyons Machinery Company.
CALIFORNIA, LOS ANGELES: Crook Company, 2900 Santa Fe Avenue, Phone Kimball 5137.
*SAN FRANCISCO: Bucyrus-Erie Company, 390 Bayshore Blvd. Phone Atwater 2341.
COLORADO, DENVER: Ray Corson Machinery Co., 1646 Wazee Street.
CONNECTICUT, NEW HAVEN: The W. I. Clark Co., 1811 Dixwell Ave.
FLORIDA, JACKSONVILLE: Quinn R. Barton, Inc., 1305 W. Forsyth St.
*GEORGIA, ATLANTA: Bucyrus-Erie Co., 1508 William-Oliver Bldg. Phone Jackson 1545.
ATLANTA: R. S. Armstrong & Bro. Co., 676 Marietta. Phone Jackson 2010.
IDAHO, BOISE: The Intermountain Equipment Co., Broadway at Myrtle St. Phone 171.
*ILLINOIS, CHICAGO: Bucyrus-Erie Company, 1312 Bankers Bldg., 105 W. Adams Street. Phone Franklin 5321.
CHICAGO: Great Lakes Supply Corp., 824 W. 36th St.
INDIANA, INDIANAPOLIS: A. F. Deaney, 719-721 N. Pine St.
IOWA, CEDAR RAPIDS: James W. Bell, 916—16th N. E.
DAVENPORT: Harry Alter & Sons, 514 S. Howell St.
KANSAS, PITTSBURG: Bucyrus-Erie Co., 209 East 4th St. Phone 164.
KENTUCKY, LOUISVILLE: Brandeis Machinery & Supply Co., Brook & Warnock Sts. Phone Magnolia 6600.
MAINE, PORTLAND: Maine Truck-Tractor Co., 158 Veranda St.
MARYLAND, BALTIMORE: Stuart M. Christhilf & Co., 205 Snow Bldg. Phone Calvert 4310.
*MASSACHUSETTS, BOSTON: Bucyrus-Erie Company, 240 N. Beacon St. Phone Stadium 3152.
MICHIGAN, DETROIT: E. D. Coogan, 10410 E. Jefferson Ave.
MINNESOTA, CROOKSTON: Wm. H. Ziegler Co., Inc., 1115 So. Main St.
DULUTH: Wm. H. Ziegler Co., Inc., 304 Lake Ave., So. Phone Melrose 681.
MINNEAPOLIS: Wm. H. Ziegler Co., Inc., 2331 University Ave., S. E. Phone Gladstone 7971.
MISSISSIPPI, JACKSON: Mississippi Road Supply Co., Telephones: Long Distance 9906, Local 3676.
*MISSOURI, KANSAS CITY: Bucyrus-Erie Company, 1007 Fairfax Bldg. Phone Harrison 4811.
*ST. LOUIS: Bucyrus-Erie Company, 818 Olive St.—Suite 906. Telephone Chestnut 1354.
ST. LOUIS: Ryan Equipment Corp.
MONTANA, MISSOULA: Westmont Tractor & Equip. Co.
NEBRASKA, OMAHA: Cardinal Supply & Mfg. Co., Sunderland Bldg.
OMAHA: Fuchs Mchy. & Supply Co., 1102 Farnam Street.
*NEW JERSEY, ENGLEWOOD: Bucyrus-Erie Company, 214-216 South Dean Street. Phone 3-6727.
NEW MEXICO, ALBUQUERQUE: R. L. Harrison Co., Inc., 209 N. 4th Street.
*NEW YORK, NEW YORK: Bucyrus-Erie Company, 30 Rockefeller Plaza, Suite 5050. Phone Columbus 5-4395.
ALBANY: Contractors Sales Co., Inc., P. O. Box 949.
MINEOLA: H. O. Penn Machy. Co.
NEW YORK: H. O. Penn Mchy. Co., Inc., 140th St. and East River.
POUGHKEEPSIE: H. O. Penn Machy. Co.
*SYRACUSE: Bucyrus-Erie Company, 303 Draper Ave. Phone 6-1078.
NORTH CAROLINA, GREENSBORO: E. F. Craven Company.
OHIO, CINCINNATI: Bode-Finn Co., 1654 Central Avenue.
CLEVELAND: W. T. Walsh Equipment Co., 3088 W. 106th St.
COLUMBUS: H. S. Robertson, Walhalla Rd. Phone Jefferson 3242.
ZANESVILLE: Southern Ohio Equip. Co., 941-3 W. Main St.
OKLAHOMA, GUTHRIE: Clarence L. Boyd Co., Inc., 501 West Oklahoma.
OKLAHOMA CITY: Clarence L. Boyd Co., Inc., 17 S.W. Pottawatomie St.
OREGON, PORTLAND: Clyde Equipment Co., 17th & Thurman Streets. Phone Broadway 5561.
*PENNSYLVANIA, PHILADELPHIA: Bucyrus-Erie Company, 821 Commercial Trust Bldg. Phone Rittenhouse 4231.
PHILADELPHIA: Furnival-Rimmer Co., Lancaster Ave. at 54th St. Phones: Trinity 5200 and West 1617.
BRADFORD: Beckwith Machy. Co., 361 Congress St.
HARRISBURG: Beckwith Machinery Co., 635 N. Cameron St. Phone 4-4064.
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TENNESSEE, KNOXVILLE: Brooks Equipment & Mfg. Co., 408-10 Davenport Rd.
MEMPHIS: Road Builders Equipment Co., Third and Calhoun Sts.
TEXAS, DALLAS: E. B. Chambers, 1806 Tower Petroleum Bldg. Phone 2-2943.
ABILENE: R. B. George Machinery Co.
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EL PASO: Tri-State Equipment Co., 500 E. Overland Ave.
HOUSTON: Gulf Tractor & Equip. Co., 3100 Polk Ave.
PECOS: Tri-State Equipment Co.
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TYLER: R. B. George Machinery Co.
UTAH, SALT LAKE CITY: The Lang Co., 267 N. First St.
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WASHINGTON, SEATTLE: Clyde Equipment Co., 3410 First Ave., South.
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Canada

BRITISH COLUMBIA, VANCOUVER: Finning Tractor and Equip. Co.
MANITOBA, WINNIPEG: Kipp-Kelly, Ltd., 68 Higgins Ave.
ONTARIO, TORONTO: F. H. Hopkins & Co., Ltd., Commerce & Transportation Building.
QUEBEC, MONTREAL: F. H. Hopkins & Co., Ltd., 340 Canada Cement Bldg., Phillips Square. Phone Plateau 1136.

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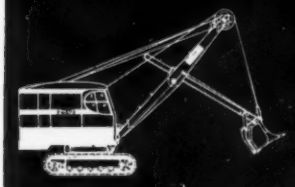
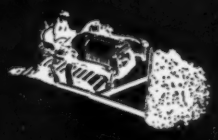

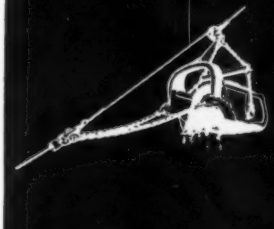

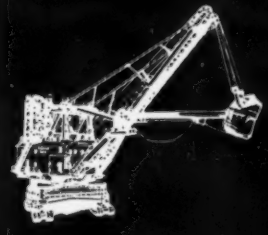
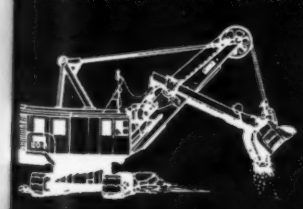
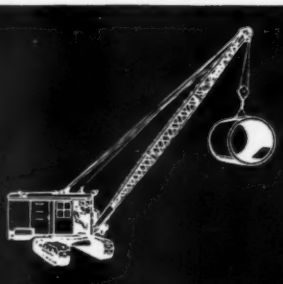
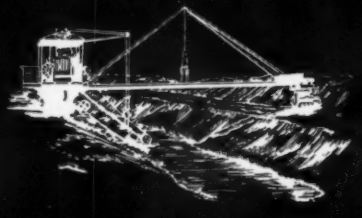

Notes from the manufacturers

John A. Roebling's Sons Company, Trenton, New Jersey, announces the appointment of Horace E. Thorn as manager of their Philadelphia branch office. He will have charge of sales and local stock of Roebling's complete line of wire rope, electrical wires and cables, cold rolled flat wire and specialties and woven wire fabrics. Mr. Thorn entered the Roebling organization in 1912, and worked for several years in their engineering department as designer and draftsman. In 1917, he was transferred to their sales department as sales agent where he remained until his present promotion.

Iron & Steel Products, Inc., Chicago, Illinois, has discontinued its St. Louis branch representation and will handle that territory direct from its Chicago office.

Caterpillar Tractor Company, Peoria, Illinois, recently promoted L. C. Allenbrand to the position of manager of the sales development division to fill the vacancy left by the appointment of G. E. Spain to the office of general sales manager. Mr. Allenbrand is the originator of the company's annual program of diesel shows and has spent most of the past few years traveling throughout the United States and Canada conducting the "Caterpillar" distributors' sales meetings, which he also originated.

Missouri Portland Cement Company recently awarded the 125 employees of the Sugar Creek, Missouri, plant, gold buttons in recognition of their continuous record of accident-free operations. On December 16, this plant has operated 2,785 consecutive days without personal injury. It was also announced that O. F. Schulzke has been appointed general superintendent in charge of production for the company's St. Louis and Kansas City plants.

S K F Industries, Inc., Philadelphia, Pennsylvania, manufacturers of ball and roller bearings, is erecting an addition of 56,200 square feet of manufacturing floor space to Plant No. 2, on the Pennsylvania Railroad at Bridge Street. This building is fire proof, of saw-tooth construction, conforming to the design of the main building. In addition, a two-story brick wing enclosing 12,000 square feet is extending office facilities at Plant No. 1, Front Street and Erie Avenue, bringing the total enclosed area of both plants to 666,600 square feet.

New trade literature

Title: "General Engineering Handbook —Second Edition"

Subject: Eleven hundred and twenty pages of practical, up-to-date information, useful reference data, specific facts, definite methods, essential formulas, covering civil, mechanical, and electrical engineering. Nineteen sections prepared by 26 specialists and presented in a readily understandable and usable form for all engineers. Actually 20% larger than the first edition.

Where to Get: McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York. Price $4.00.

Title: "Minerals Yearbook 1940—Review of 1939"

Subject: A review of trends in production, consumption, prices, stocks, technologic progress, world conditions, and international trade for nearly one hundred metal and mineral commodities. A survey of the bituminous coal industry, furnished through the courtesy of the National Bituminous Coal Division. The record of nonferrous metal production with final statistics for 1939 for every state. Results of an expanded survey of non-

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WON'T QUIT
OR CAUSE TIME OUT
A Hayward Bucket keeps the job going ahead on scheduled time. It won't quit or cause time out.
THE HAYWARD COMPANY
52-54 Church Street
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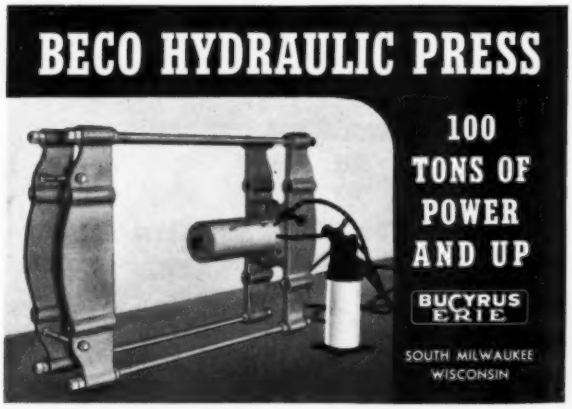

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Positions wanted advertisements will be run under this heading for 5 cents per word, minimum charge $1.00. Advertisements for help wanted free of charge.

Address all box numbers c/o EXCAVATING ENGINEER . . . . . at South Milwaukee, Wisconsin

BLAST HOLE DRILL OPERATOR

Blast hole drill operator, 10 years' experience on gas, diesel and electric, large and small machines. Can do own repair work. Middle age, single and willing to go anywhere in U.S.A. Excellent references. Box 9160

EXPERIENCED OPERATOR

Operator with fifteen years' experience on gasoline and diesel powered shovels, draglines, and crane-clamshell machines on highway and sewer construction jobs desires steady work anywhere. Preference: Northwest shovel or dragline about 2 yard capacity. Can do own repair work. References furnished. Age 32. Married. Now located in Missouri. Box 9159

SUPT.-FOREMAN

With 20 years' experience of concrete work on all kinds of buildings, bridges, highway roads. Will go anywhere in United States. Best reference. Box 9165

BLAST HOLE DRILL OPERATOR

Three years' steady employment on Loomis Clipper "44", Cyclone piston type 1200-G and Bucyrus-Armstrong 27-T and 42-T, gas and electric blast hole drills on Penna. anthracite coal field. Able to make repairs. Unmarried. Age 39. Now located in Pennsylvania; willing to go anywhere. Can furnish best of references. Wants steady job on any blast hole drill; preference Armstrong. Box 9161

ALL-AROUND OPERATOR

Can operate any kind of machine, large or small. Can do own repair work. Have had experience in quarry, ore and coal stripping; familiar with grading work. Can operate steam, diesel, gas or electric. Would like steady employment on large-scale operation. Will furnish references. Box 9164

EXPERIENCED OPERATOR

Operator with 20 years' experience on steam, diesel and electric draglines and shovels. Prefers steady work in rock quarry, gravel pit or strip mine. Tools. Experienced on repairs. Married, sober, reliable. Best references. Box 9166

ferrous secondary metals. A summary of the domestic situation with respect to the more important strategic minerals that must be obtained in whole or part from foreign source.

Where to Get: Superintendent of Documents, Government Printing Office, Washington, D. C. Price $2.00 in U. S., Canada and Mexico. $2.50 in other foreign countries.

Title: **"Power Drag Scrapers"**

Subject: Complete information on the design, construction, methods of operation and principal uses of these drag scrapers from ⅓ to 4 cu. yd. in size. Complete data on specifications and mechanical details included. Illustrations show exactly how these units are applied on different jobs.

Where to Get: Sauerman Brothers, Inc., 474 South Clinton Street, Chicago, Illinois. Free upon request, ask for catalog 19, section A.

Title: **"'Seal Master' Ball Bearing Units"**

Subject: A simplified yet detailed presentation of a complete line of bearing units which are pre-lubricated, self-aligning, and feature the permanent "Seal Master" centrifugal labyrinth seal which efficiently keeps out dirt and retains lubricant.

Where to Get: Stephens-Adamson Manufacturing Company, Aurora, Illinois. Free upon request, ask for catalog No. 840.

Title: **"Sabotage — How to Guard Against It"**

Subject: A portrayal of the operation of saboteurs during World War I and II, and a revelation of the Nazi sabotage network, as directed by the Auslands Organization. The questions, "What happened to France?" and "Why did Winston Churchill round up all suspected subverters?" are dealt with. Also, the author dwells on the prediction that axis saboteurs have already received "total war" orders against American industries and he uses ample proof to show that the saboteur is here; what he will do; how he will do it; and what can be done about it.

Where to Get: National Foremen's Institute, Inc., New York, New York. Price $1.00.

Title: **"Ohm's Law Calculator"**

Subject: A slide which gives the answer to any Ohm's law problem with one setting. Requires no knowledge of slide rule to operate. Has scales on both sides so as to cover the range of currents, resistances, wattages and voltages commonly used in the industrial, electronic, and radio field. Has a convenient stock unit selector, listing hundreds of stock values, immediately available, in dividohms, fixed resistors, and rheostats.

Where to Get: Ohmite Manufacturing Company, 4835 Flournoy Street, Chicago, Illinois. Available to engineers, laboratory men, production managers, maintenance men, purchasing agents, etc. Write in on company letterhead giving name and position and send 10c to cover handling cost.

Title: **"Maloney Boulder Buster"**

Subject: Explanation and application illustrations on how this tool is used to break boulders, rock and concrete.

Where to Get: Marcrome Manufacturing Company, 1200 North Rock Hill Road, St. Louis, Missouri.

Title: **"Buckeye Clipper"**

Subject: Model 70, ¾ yard convertible shovel. Full specifications are given and the convertibility to dragline, crane and trench hoe is illustrated.

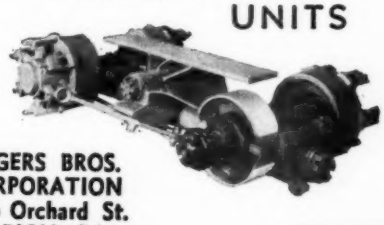
Where to Get: Buckeye Traction Ditcher Company, Findlay, Ohio. Free upon request, ask for bulletin 16-10.

Title: **"P&H Crawler Cranes"**

Subject: Bulletin, covering cranes with capacities from 5 to 60 tons, supplementary material on truck cranes,

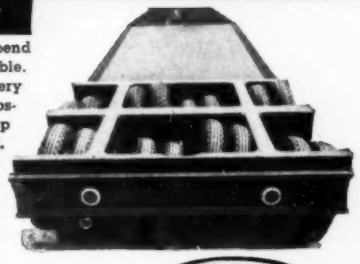
YOU'LL ENJOY EXCEPTIONAL SERVICE

If your trailer rides on two of these ROGERS UNITS



ROGERS BROS. CORPORATION
136 Orchard St.
ALBION, PA.

TRAILER service and tire life depend upon vital parts not ordinarily visible. Under rear of large trailers are two very important units. They must carry the load, oscillate lengthwise and crosswise, and keep all eight wheels in permanent alignment. Rogers have met all of these exacting requirements in the unit illustrated. Note heavy pad supporting one of two wide-flange H sections, the well ribbed castings, the widely-spaced bearings of rocking members, the large area of brake shoes, the heavy cross-section, non-tapering spindle and the two extra large Timken bearings between which the wheel load is equally distributed.



EXPERIENCE *builds 'em* PERFORMANCE *sells 'em*

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switcher cranes and other specialized equipment. Also contains a variety of installation photographs and a discussion of P&H design.

Where to Get: Harnischfeger Corporation, Milwaukee, Wisconsin. Free upon request, ask for bulletin X-78.

Title: "1941 Dodge Trucks"

Subject: Full information on 1941 Dodge job-rated trucks. Representative models of the entire line are attractively illustrated in full color. Several pages are devoted to specifications and owner's experiences. Forty-four pages.

Where to Get: Dodge Truck Advertising Department, Detroit, Michigan. Free upon request to truck operators.

Title: "Cord Conveyor Belt"

Subject: Construction details and varied types of operation illustrated and described. Physical advantages of the cord belt construction are discussed in one chapter, while others take up the subjects of cover adhesion, flexibility, vulcanized and metal splices, engineering advantages, f r e e d o m from stretch and mildew resistance.

Where to Get: B. F. Goodrich Company, Akron, Ohio. Free upon request.

Title: "Flexarc Welder"

Subject: Twelve page illustrated booklet giving facts about welders and their operation. Covered in the booklet are motor and engine driven welders, and bare welding generators.

Where to Get: Dept. 7-N-20, Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa. Free upon request, ask for descriptive data 26-100.

Title: "Robins Contractor's Screen"

Subject: Purpose and features of the contractor's screen outlined in easily understandable form. Specifications, dimensions and an illustrated comparison of the old and new method of screening are included. Pictures and a suitable descriptive caption regarding other Robins products.

Where to Get: Robins Conveying Belt Company, Passaic, New Jersey. Free upon request, ask for bulletin 110.

Title: "Power Unit Catalog"

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Where to Get: Hercules Motors Corporation, Canton, Ohio. Free upon request.

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